DEPARTMENT OF THE ARMY
U.S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO ATTENTION OF

HSHB-ME-SR (40)

17 MAY

MEMORANDUM FOR Commander, U.S. Army Environmental Center, ATTN: SFIM-AEC-TSS, Aberdeen Proving Ground, MD 21010-5401

SUBJECT: Review of the Pre-Draft Record of Decision for Operable Units 5, 6, 7, and 10, Tooele Army Depot-North Area, Tooele, Utah, Prepared by Rust Environment and Infrastructure, April 1994

1. The U.S. Army Environmental Hygiene Agency has, on the behalf of the Office of The Surgeon General, reviewed the subject document for incorporation of comments. All comments have been addressed as recommended. We have no additional comments at this time.

2. The scientist reviewing the document was Ms. Bonnie J. Gaborek, Waste Disposal Engineering Division. The point of contact for technical questions is Ms. Bonnie J. Gaborek, at DSN 584-5216 or commercial (410) 671-5216.

FOR THE COMMANDER:

Arthur P. Lee

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This document describes the Record of Decision for four operable units at Tooele Army Depot—North Area. The writeup for each operable unit includes a Declaration and Decision Summary. A Responsiveness Summary that incorporates a transcript of the public meeting is included. A synopsis of data presented in an earlier Remedial Investigation Report and Feasibility Study are included. The document includes a brief management level introduction, which contains general information applicable to each operable unit. Sections specific to each operable unit follow.

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Tooele Army Depot-North Area

Record of Decision
for
Operable Units 5, 6, 7, and 10

September 1994

U.S. Army Environmental Center
Aberdeen Proving Ground, Maryland 21010-5401
Under Contract No. DAAA15-90-D-0007

In accordance with Army Regulation 200-2, this document is intended by the Army to comply with the National Environmental Policy Act of 1969 (NEPA).

Contents

Contents (continued)

Page

Appendix

Contents (continued)

Page

Figures (continued)

Tables

Acronyms and Abbreviations

ARAR	applicable or relevant and appropriate requirement
BRAC	Base Realignment and Closure
CAP	Corrective Action Permit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
DEQ	State of Utah Department of Environmental Quality
DOT	Department of Transportation
EP	extraction procedure
EPA	U.S. Environmental Protection Agency
FFA	Federal Facility Agreement
HI	hazard index
HQ	hazard quotient
mg/day	milligrams per day
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Administration
OU	operable unit
PCBs	polychlorinated biphenyls
PCDDs	polychlorinated dibenzodioxins
PCDFs	polychlorinated dibenzofurans
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SWMUs	solid waste management units
TCLP	toxicity characteristic leaching procedure
TEAD	Tooele Army Depot
TEAD-N	Tooele Army Depot-North Area
TEAD-S	Tooele Army Depot-South Area
TSCA	Toxic Substances Control Act
μg/g	micrograms per gram

Section 1

Background Information

1.0 INTRODUCTION

1.1 PURPOSE

Tooele Army Depot-North Area (TEAD-N) is a National Priorities List (NPL) site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1986, as amended by the Superfund Amendments and Reauthorization Act (SARA). TEAD-N occupies approximately 24,732 acres of the Tooele Valley, in Tooele County, Utah. The facility is located just west of the city of Tooele, Utah, approximately 35 miles southwest of Salt Lake City (Figure 1-1). There are 7 Operable Units (OUs) containing 17 solid waste management units (SWMUs) under the Superfund program at TEAD-N (Figure 1-2). Of these, it has been determined that sufficient information is available to proceed to a decision on four OUs, which include six SWMUs. The remaining 11 SWMUs are undergoing additional field investigations prior to reaching a decision.

Assembled herein is the Record of Decision (ROD) for four OUs containing the six SWMUs for which sufficient information exists to establish appropriate response actions (Figure 1-3). These OUs and associated SWMUs are shown in Table 1-1.

Table 1-1. Operable Units and SWMUs at TEAD-N Covered by This Record of Decision

Operable Unit	SWMU No.	SWMU Name
5	17	Former Transformer Storage Area
	33	PCB Storage Building 659
6	9	Drummed Radioactive Waste Area
	18	Radioactive Waste Storage Building
7	5	Pole Transformer PCB Spill
10	41	Box Elder Wash Drum Site

This ROD has been developed to comply with CERCLA and with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) in accordance with a Federal Facility Agreement (FFA) between U.S. Environmental Protection Agency (USEPA) Region VIII, State of Utah Department of Environmental Quality (DEQ), and Tooele Army Depot (TEAD).

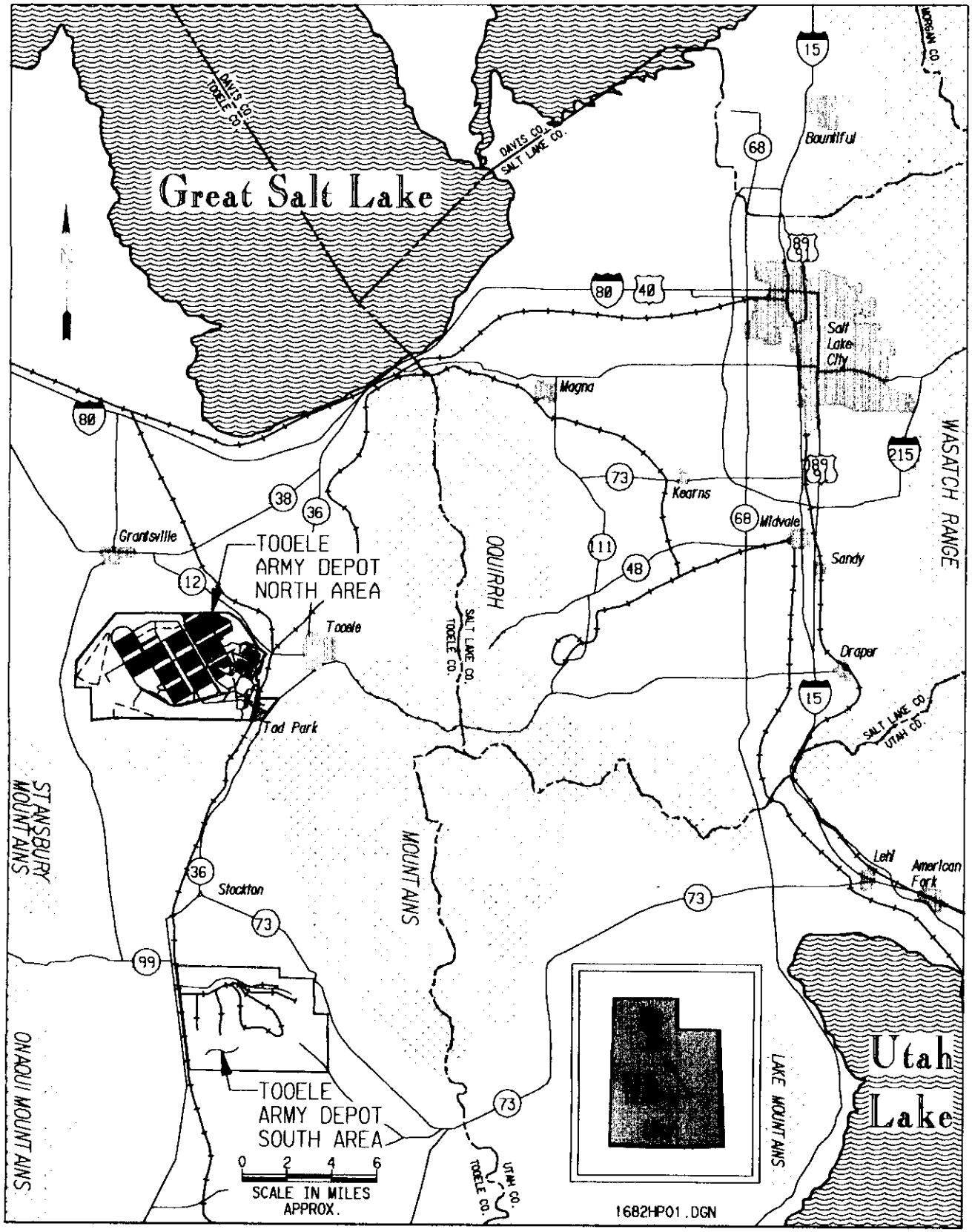

Figure 1-1. Location Map of Tooele Army Depot–North Area

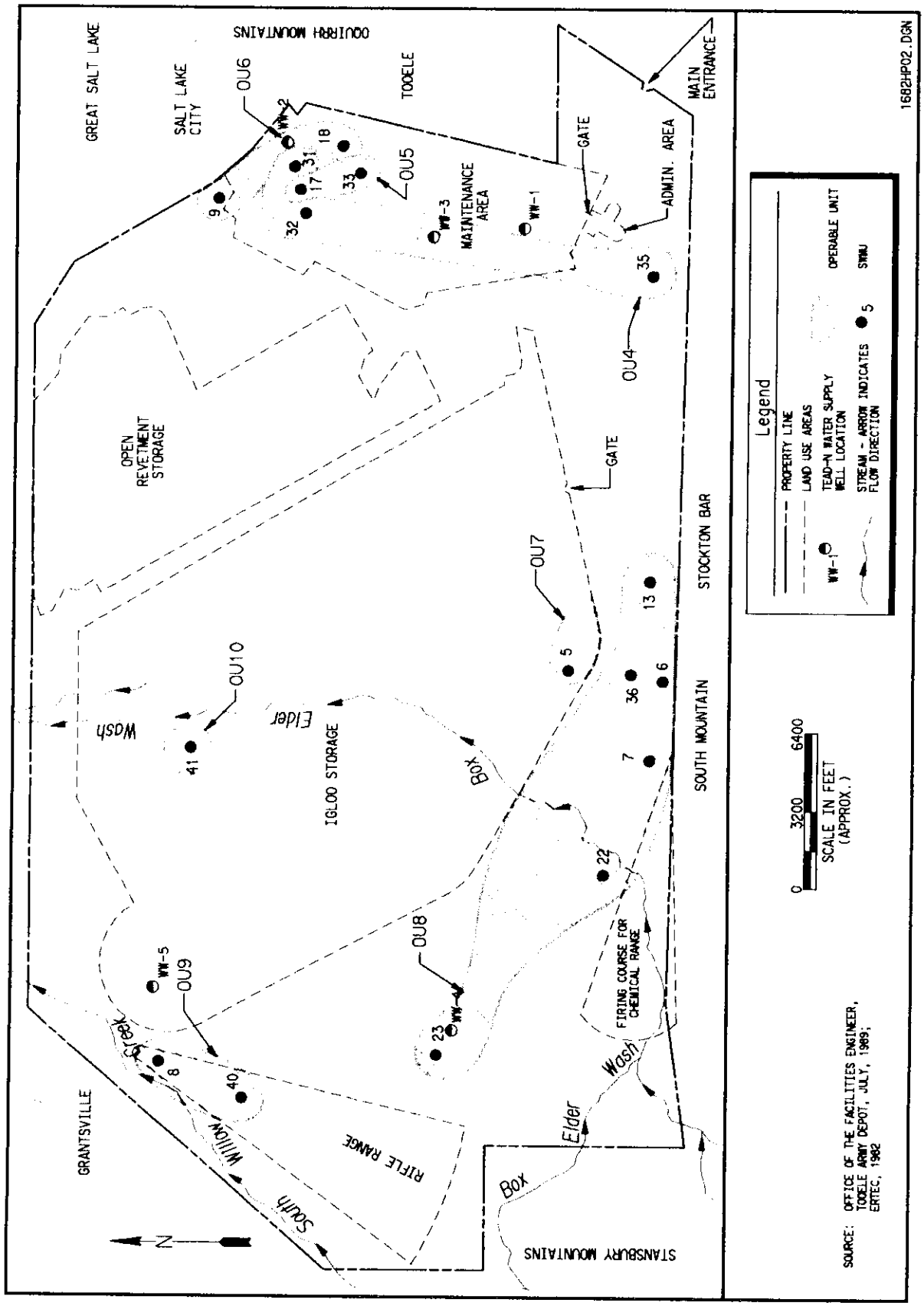

Figure 1-2. Location Map of Operable Units and SWMUs at Tooele Army Depot-North Area

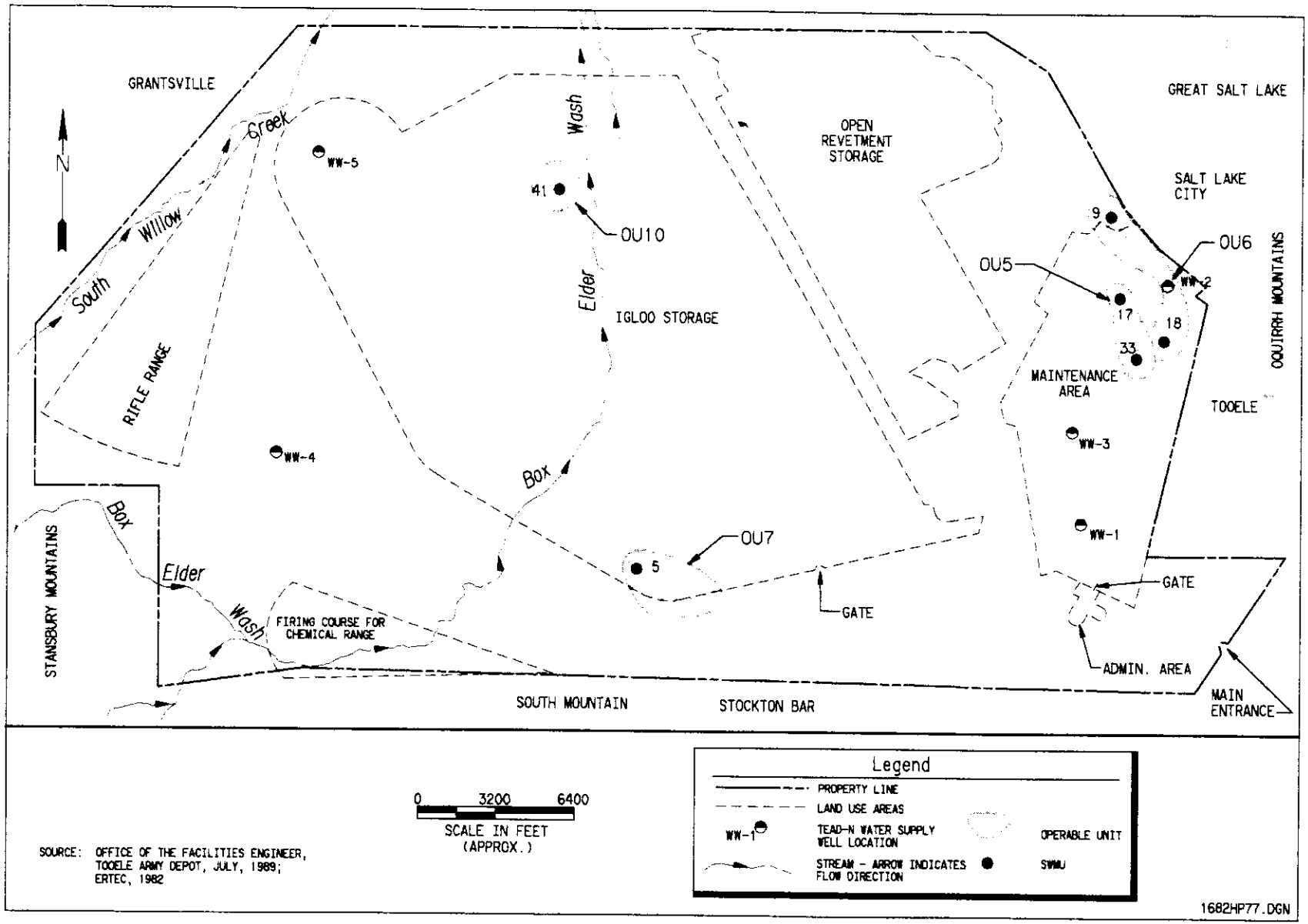

Figure 1-3. Location Map of Operable Units and SWMUs at Tooele Army Depot-North Area Covered by This Record of Decision

1.2 RECORD OF DECISION ORGANIZATION

In accordance with EPA guidance, the ROD follows this general outline:

1. The Declaration–An abstract for key information in the ROD, which provides a brief description of the selected remedy for each site and a statement that the remedy complies with CERCLA and is consistent, to the extent practicable, with the NCP. It is signed by designated officials of all involved parties.

2. The Decision Summary for each OU–An overview of potential problems posed by the conditions at a site, possible remedies to any problems, a rationale for remedy selection, and an analysis of the selected remedy's satisfaction of statutory requirements.

3. The Responsiveness Summary–A summary of significant comments received from the public during the public comment period and TEAD responses to these comments.

1.3 GENERAL BACKGROUND

1.3.1 Physical Setting

1.3.1.1 *Surface Features*

TEAD-N is located in the southern portion of the Tooele Valley in Tooele County, Utah. The north-trending Oquirrh and Stansbury Mountains rise from the valley floor at elevations ranging from 5,000 to over 10,000 feet. TEAD-N is situated on the floor of the valley shaped by coalescing alluvial fans formed by erosional debris washed from the Oquirrh and Stansbury mountains. The valley floor in the vicinity of TEAD-N slopes toward the north. The average topographic gradient in the northern portion of the site is approximately 70 feet per mile, increasing to about 150 feet per mile at the southern boundary.

1.3.1.2 *Meteorology*

The climate of the Tooele Valley ranges from arid to semiarid at the salt flats near the Great Salt Lake to moderate in the mountains surrounding the valley. Rainfall is minimal in the valley, and the average annual precipitation between 1897 and 1985 was approximately 16.95 inches in Tooele, although in Grantsville the average annual precipitation was 11 inches between 1957 and 1977. The greatest precipitation occurs in the mountains surrounding the valley, where the average amount is more than 40 inches per year. Air temperatures at Tooele from 1941 to 1970 averaged 51 °F (10.6 °C).

1.3.1.3 *Geology*

The Tooele Valley is typical of basin and range physiography in which fault-block mountains rise above flat intermountain valleys. Bedrock in the mountain ranges bordering the valley has been extensively folded and faulted. The Tooele Valley is filled with a thick sequence of unconsolidated alluvial sediments of Tertiary and Quaternary age. The valley was formed as sand grains, gravels, and cobbles composed of quartzite, sandstone, and limestone, eroded primarily from the Oquirrh Mountains east of TEAD-N. Because alluvial deposits at TEAD-N generally are coarse grained, they form a productive aquifer system when saturated.

1.3.1.4 *Soils*

Eight primary soil types have been identified in the vicinity of the TEAD-N facility: the (1) Abela, (2) Berent, (3) Hiko Peak, (4) Birdow, (5) Medburn, (6) Taylorsflat, (7) Doyce, and (8) Manessa. Additionally, two miscellaneous types (manmade) were identified, Borrow Pits and Disturbed Area. These soils, which developed in alluvial deposits or lacustrine sediments, consist primarily of gravelly loam, loam, or fine sand. Hydraulic conductivities of the soil in the TEAD-N area range from 1×10^{-2} to 1×10^{-4} centimeters per second. Table 2-1 of the *Final Remedial Investigation Report for Operable Units 4-10* presents general characteristics of surface soil at TEAD-N.

1.3.1.5 *Hydrogeology*

Groundwater in Tooele Valley is found in the alluvial valley fill deposits and, to a less extent, in underlying bedrock. Groundwater flow direction at TEAD-N is from the southeast to the northwest, but is altered somewhat in the northeastern area of the facility where the alluvial aquifer encounters a fault-block bedrock ridge. The potentiometric surface is relatively flat with a hydraulic gradient of approximately 0.007 foot per foot across the installation. The depth to the regional groundwater aquifer under the facility is generally over 200 feet.

Numerous, localized moist zones may exist on the installation. It is believed that groundwater perched along these zones will eventually reach the regional alluvial aquifer. For a more in-depth discussion of the hydrogeology at TEAD-N, see Section 2.6 of the *Final Remedial Investigation Report for Operable Units 4-10.*

1.3.1.6 *Surface Water*

During rare periods of heavy rain or rapid melting of mountain snowpacks, surface water may occur at TEAD-N in Box Elder Wash and South Willow Creek, both of which cross TEAD-N near its western boundaries.

1.3.1.7 *Land Use*

Except for the city of Tooele, properties immediately adjacent to TEAD-N boundaries are undeveloped. Properties to the north are used for pasture or cultivation; properties to the west and south are used for rangeland grazing. Properties east of TEAD-N consist of Tooele and undeveloped rangeland along the lower western slopes of the Oquirrh Mountains. Scattered gravel pits are also located southeast of TEAD-N along SR 36. Except for the southeastern portion (bounded by SR 36), TEAD-N is bounded on the east by the Union Pacific Railroad right-of-way. Residential development abuts the northern boundary of this portion of TEAD-N. Tooele Municipal Airport and scattered residential homes are located along the eastern boundary north to SR 112, which forms the northeastern boundary of TEAD-N. The area northeast of SR 112 is undeveloped except for a construction company and Tooele Landfill. There is on-base housing for both civilians and military families in the administrative area. For a complete discussion of current and future land use, see Sections 3.5.2.1.1 and 3.5.2.1.2, respectively, of the *Final Remedial Investigation Report for Operable Units 4-10.*

1.3.1.8 *Vegetation*

The Tooele Valley region is dominated by sagebrush and saltbrush plant species. A total of seven range site types have been identified within the TEAD-N facility area: (1) Semidesert Sand (Utah Juniper), (2) Semidesert Gravelly Loam (Wyoming Big Sagebrush), (3) Semidesert Loam (Wyoming Big Sagebrush), (4) Semidesert Alkali Loam (Black Greasewood), (5) Upland Stony Loam (Pinyon-Utah Juniper), (6) Loamy Bottom (Basin Wildrye), and (7) Upland Loam (Mountain Big Sagebrush). Characterization of these types is discussed in detail in Section 2.8 of the *Final Remedial Investigation Report for Operable Units 4-10.*

1.3.1.9 *Wildlife Species*

Approximately 127 species have been identified in the near vicinity of the TEAD-N facility area. Of these, 58 species were mammals and 63 were birds. Additionally, six reptiles were also identified. No fish or amphibians were identified. Wildlife species noted either have been observed during field investigations or considered as likely habitants based upon extensive previous studies conducted at TEAD-N.

1.3.1.10 *Threatened and Endangered Species*

There are 15 endangered, candidate, or sensitive mammalian and avian wildlife species either known to occur or potentially occur on the TEAD-N facility, 11 of which are protected by the Endangered Species Act of 1973, Section 668-668d. Of these 15, 9 are endangered, candidate, or sensitive bird species that have been either identified in the region or observed on the TEAD-N facility area; 2 are federal candidate mammalian species that may also occur on the site; and 4 are Utah State sensitive species that occur or may occur on the site either as

permanent or seasonal residents. Table 2-7 of the *Final Remedial Investigation Report for Operable Units 4-10* presents a list of mammals, birds, and reptiles at TEAD-N.

An endangered species survey for flora has been conducted on the TEAD-N site, but no observations of endangered or sensitive species have been recorded. However, because of the types of vegetation communities present on the site or because of sightings in adjacent areas, the following federally listed species could possibly occur on the site: clay phacelia (*Phacelia argillacea*), cryptantha (*Crypantha compacta*), desert milkvetch (*Astragalus desereticus*), Pohl's milkvetch (*Astragalus lentiginous ssp. pohlii*), Ute lady's tresses (*Spiranthes diluvialis*), deep creek stickseed (*Hackelia ibapensis*), and basin fishhook cactus (*Sclerocactus pubispinus*). Only the clay phacelia is listed as endangered; all of the other species are listed as Category II species.

1.3.2 History and Enforcement Activities

TEAD-N was established as the Tooele Ordnance Depot on April 7, 1942, by the U.S. Army Ordnance Department. It was redesignated as TEAD-N in August of 1962. At that time, a second facility, Tooele Army Depot-South Area (TEAD-S; formerly the Deseret Chemical Warfare Depot) became part of the Tooele Army Depot, although the two facilities are located approximately 17 miles apart.

During World War II, TEAD was a back-up depot for the Stockton Ordnance Depot and Benicia Arsenal, both located in California. It stored vehicles, small arms, and other equipment for export.

The current missions of TEAD-N include the maintenance, renovation, and storage of wheeled vehicles, and the reception, storage, issuance, maintenance, and disposal of munitions. Developed features at TEAD-N include igloos, magazines, administrative buildings, an industrial maintenance area, military and civilian housing, roads, hardstands for vehicle storage, and other allied infrastructure.

Currently, TEAD is one of the major ammunition storage and equipment maintenance installations in the U.S., supporting other Army installations throughout the western U.S. However, portions of the installation are slated for closure under Base Realignment and Closure (BRAC) actions. BRAC legislation passed in September 1993 specifies that the Army's maintenance and related missions must cease at TEAD-N by September 1999. Current closure plans envision that the maintenance area (Figure 1-3) will be utilized for industrial purposes by private firms or other government entities. A total of about 1,700 acres would be transferred from TEAD-N by this action.

As a result of continuous operations since 1942, a variety of known and potential waste and spill sites have been identified at TEAD-N. A variety of environmental investigations have been conducted at TEAD-N from 1979 to the present. In 1987, a Final Interim Resource Conservation and Recovery Act (RCRA) Facility Assessment for TEAD-N was published,

identifying 28 SWMUs. These SWMUs were suspected or known to have released contaminants into the environment. Subsequent investigations resulted in the identification of an additional 26 SWMUs, which resulted in a total of 54 potential hazardous waste sites at TEAD-N.

On October 2, 1984, the EPA proposed TEAD-N for inclusion on the NPL. The facility was listed on the NPL on October 1, 1990. As a result, the EPA, State of Utah, and TEAD entered into an FFA on September 16, 1991. In this agreement, 17 of the 46 SWMUs identified at the time were redesignated as CERCLA action areas contained within 7 OUs. The remaining 29 SWMUs are covered under a RCRA Corrective Action Permit (CAP), which was issued to TEAD by the State of Utah on January 7, 1991. Under the CAP, the SWMUs were divided into 9 known releases SWMUs and 20 suspected releases SWMUs. As a result of the FFA and CAP, work plans were prepared and field investigation activities were undertaken. Since that time, 8 additional SWMUs have been identified for investigation, bringing the total to 54 SWMUs identified on TEAD-N.

Guidelines for the remediation of hazardous constituents released from federal facilities are provided in Section 120 of CERCLA. Essentially, all guidelines, rules, regulations, and criteria carried out under CERCLA apply to federal facilities. In that context, environmental studies and remediation activities to be conducted at TEAD-N are governed by CERCLA under the review and approval of the EPA Region VIII and the State of Utah (the Division of Environmental Response and Remediation). The FFA specifies the responsibilities of each agency for the study and cleanup of waste sites at TEAD-N. The FFA also includes a schedule for the completion of each major phase of the CERCLA process.

1.3.3 Highlights of Community Participation

A Community Relations Plan for TEAD remedial action was completed on February 1, 1992. The plan development began in 1988 and included interviews with 24 individuals from the TEAD labor force and the local community. The Community Relations Plan is currently undergoing revision. Additional community interviews will be conducted to update the database. Technical Review Committee meetings, which are open to the public, have been held locally every 3 months since February 1988 to discuss specific characterization progress and planned clean-up activities involving TEAD Installation Restoration work. Specific presentations and site tours have been readily available upon request by public interest groups.

The *Final Remedial Investigation Report for Operable Units 4-10* was released to the public on July 1993. The *Final Feasibility Study Report for Operable Units 5, 6, 7, and 10* was released to the public on December 1993. The *Proposed Plan for Operable Units 5, 6, 7, and 10* was released to the public on May 2, 1994. These documents were made available in the Administrative Record and in information repositories maintained in the Public Affairs Office at TEAD, the Tooele Public Library, the Grantsville Public Library, and the Marriott Library at the University of Utah. Information in these repositories is regularly updated. The notice of availability of these documents was published in the *Deseret News* on May 2, 1994, and the

Transcript Bulletin on May 3, 1994. A public comment period on the Proposed Plan was held from May 9, 1994, through June 8, 1994. In addition, a public meeting was held on June 2, 1994, at the Tooele County Courthouse. At this meeting, representatives from TEAD, the EPA, and the DEQ answered questions about the site and remedial alternatives considered for the site. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this ROD. A complete transcript of the meeting is provided as Appendix A to this ROD. This decision document presents the selected remedial action for OUs 5, 6, 7, and 10 at TEAD-N in accordance with CERCLA, as amended by SARA and, to the extent practicable, the NCP. The decision for these OUs is based on the Administrative Record.

1.3.4 Responsive Summary

As outlined in Section 1.3.3, the Feasibility Study and the Proposed Plan were made available to the public in the administrative record file located in the Public Affairs Office at TEAD-N and in information repositories located in the Tooele Public Library, the Grantsville Public Library, and the Marriott Library at the University of Utah.

The public comment period on the Proposed Plan was from May 9, 1994 through June 8, 1994. In addition, a public meeting was held at the Tooele County Courthouse on June 2, 1994. At this meeting, representatives of the U.S. Army and its contractor, the USEPA, and the State of Utah discussed with the public the preferred alternatives for the four operable units containing the six SWMUs under consideration at this time.

Written comments were not received during the public comment period. This Responsiveness Summary addresses comments received during the public meeting. The comments are summarized and responses provided as applicable.

Public Comment No. 1

Who would be performing the actual field cleanup?

Response to Public Comment No. 1

After formal Record of Decision approval, the Army Corps of Engineers will assume responsibility for remedial design and implementation of cleanup. Contractors will be chosen by the Corps of Engineers for this work. Groundwater cleanup is currently underway at TEAD-N.

Public Comment No. 2

Who is the contractor for the groundwater cleanup?

Response to Comment No. 2

Metcalf and Eddy.

Public Comment No. 3

The Proposed Plan states that SWMU 33, the PCB Storage Building, is permitted under TSCA. This is not correct as no permits are required by the Toxic Substances Control Act (TSCA) for operation of this facility. The storage facility was operated under TSCA regulations, but did not require a permit.

Response to Public Comment No. 3

Although the comment is correct, the clarification of TSCA permitting does not affect the preferred alternative analysis for SWMU 33.

Section 2

Record of Decision for Operable Unit 5

DECLARATION OF THE RECORD OF DECISION FOR OPERABLE UNIT 5

Operable Unit Name and Location

OU 5 has been or continues to be used to store electrical transformers or other switch gear, which may contain polychlorinated biphenyls (PCBs). It is located in the Maintenance Area of TEAD-N, Tooele, Utah. The SWMUs in this OU are SWMU 17, Former Transformer Storage Area, and SWMU 33, PCB Storage Building 659.

Statement of Basis and Purpose

This decision document records the selected remedy for OU 5 at TEAD-N. The actions were chosen in accordance with CERCLA, as amended by SARA, and to the extent practicable, the NCP. The decision on the selected remedy is based upon information contained in the Administrative Record for this OU.

The USEPA and the State of Utah concur with the selected remedy.

Description of the Selected Remedy: No Action

The selected remedy for OU 5 is No Action because current conditions at SWMU 17 do not present unacceptable risks to human health and the environment. Further, no action is designated for SWMU 33, the PCB Storage Building 659, because EPA is deferring authority on this SWMU to existing RCRA and TSCA regulating jurisdiction and to closure under BRAC requirements, which will require compliance with CERCLA.

Declaration Statement

No remedial action is necessary at OU 5 to ensure continued protection of human health and the environment. Conditions at SWMU 17 are protective of human health and the environment. SWMU 33 is currently active, is operated under TSCA regulations, and is also regulated under the TEAD-N RCRA Post Closure Permit as specified in Section 5 of the TEAD-N FFA. There have been no known PCB releases to the environment from activities inside Building 659. Any future closure of the facility would be conducted under the appropriate TSCA, RCRA, and BRAC closure requirements.

Signature and Support Agency Acceptance of the Remedy

Jesse L. Brokenburr
COL, OD
Commanding
Tooele Army Depot

Date

Signature and Support Agency Acceptance of the Remedy

Lewis D. Walker
Deputy Assistant Secretary of the Army
(Environment, Safety, and Occupational Health)

Date

Signature and Support Agency Acceptance of the Remedy

William P. Yellowtail
Regional Administrator,
Region VIII, USEPA

Date

Signature and Support Agency Acceptance of the Remedy

Dianne R. Nielson, Ph.D.
Executive Director
Utah Department of Environmental Quality

Date

2.0 DECISION SUMMARY FOR OPERABLE UNIT 5

2.1 SCOPE AND ROLE OF OPERABLE UNIT 5

Operable Unit 5, which consists of SWMU 17 and SWMU 33, is located in the Maintenance Area of TEAD-N (Figure 2-1). These areas are both associated with past or present storage of PCB-containing electrical transformers. Action on this OU will be to continue to protect the public health and the environment from possible risks due to current or future exposure to contaminated soils or groundwater.

2.1.1 Description

SWMU 17, the Former Transformer Storage Area, is known as Open Storage Lot No. 675B. The lot is unpaved, but graveled, and covers an area of approximately 5 acres (350 by 600 feet). Lot 675B is currently used for storage of vehicle-related equipment. SWMU 33, PCB Storage Building 659, is a TSCA-regulated facility currently used to store transformers on open pallets and in wooden crates within the building. The 180 feet by 250 feet PCB storage area has a sealed cement floor and an 8-inch-high perimeter berm and diversion structures at each entrance for the containment of oil spills. Much of the surface around the outside of the building is paved. Operation of the site is conducted under TSCA regulations. Any future closure of SWMU 33 would also be conducted under TSCA regulations and BRAC requirements, which specify compliance with CERCLA, and will satisfy RCRA Corrective Action obligations as specified in the TEAD-N FFA.

2.1.2 Characteristics

One of the responsibilities of TEAD-N has been the receiving, storage, maintenance, and shipment of oil-containing electrical transformers and capacitors. Based upon TEAD-N records, prior to 1979 thousands of transformers and capacitors were stored at SWMU 17. Many of these transformers contained PCB-contaminated oil. In 1979, all transformers were removed from SWMU 17, which is currently used for the storage of vehicle-related equipment. Transformers awaiting re-use are now stored in the enclosed building, SWMU 33.

Potential contaminants of concern to public health and the environment at Operable Unit 5 are PCBs. PCBs are generally considered chemically and environmentally stable, exhibiting low volatilization rates. PCBs, however, may enter the atmosphere through adsorption to particles that become airborne. The most likely exposure pathways for PCBs at OU 5 are via dermal contact, incidental soil ingestion, and inhalation of fugitive dust.

Although PCBs are not appreciably taken up by plants, they do bioconcentrate in fatty tissue in animals because of their stability, high lipid solubility and/or binding, and low water solubility. In addition to the low bioavailability of PCBs in soils, the current physical nature of OU 5 (graveled storage lot or enclosed building) minimizes the likelihood of possible PCB

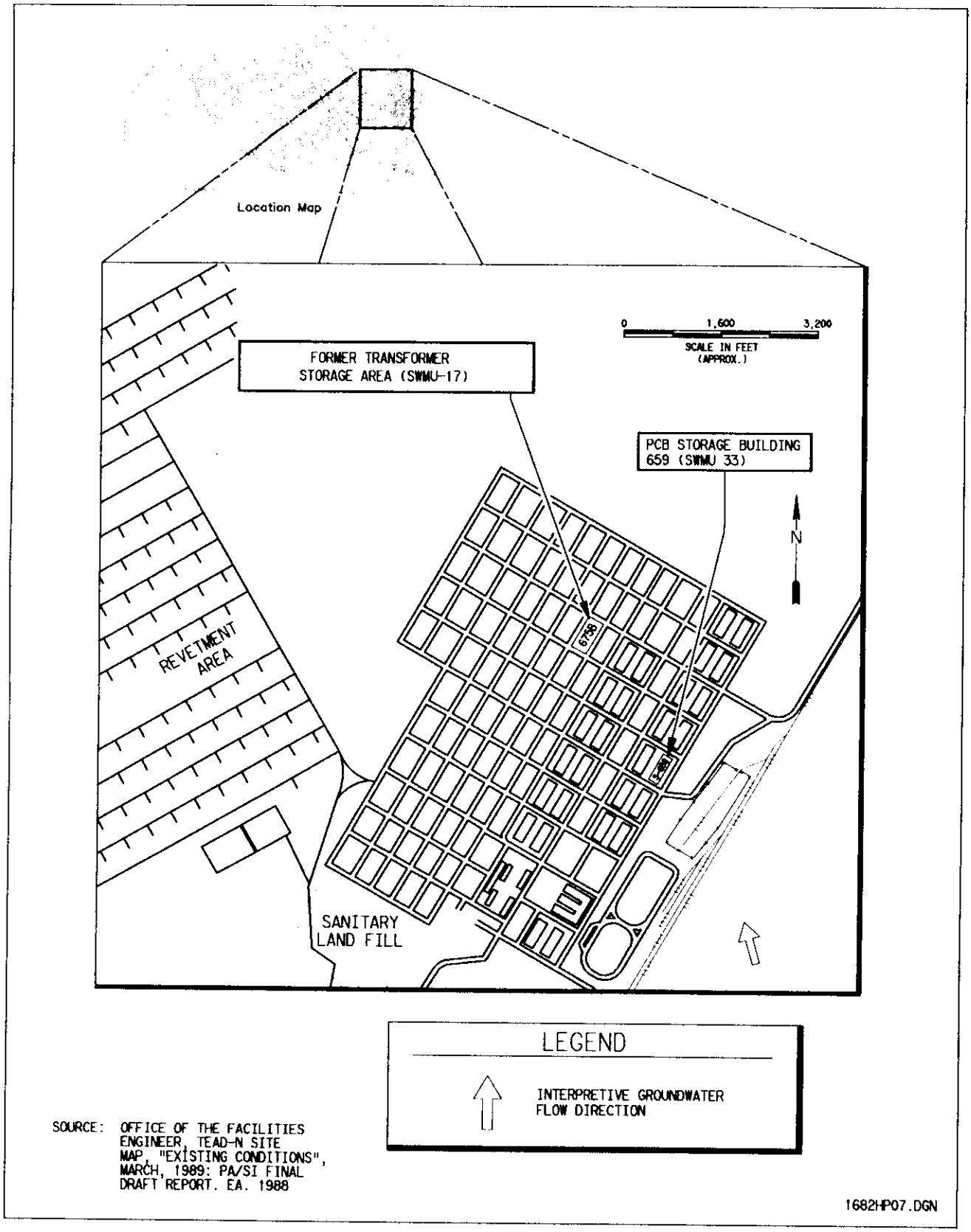

Figure 2-1. Location Map of Operable Unit 5, the Former Transformer Storage Area (SWMU 17) and PCB Storage Building 659 (SWMU 33)

bioaccumulation. OU 5 is part of a large industrial complex at TEAD-N and, as such, is not available for locally grazed cattle or homegrown produce; therefore, these pathways are not considered complete for current land use conditions, but may be considered complete for a future residential scenario. BRAC plans envision that OU 5 will be transferred to non-Army industrial use, further minimizing the possibility of potential future human habitation.

Contaminant fate and transport are discussed in Section 5.1.5 of the *Final Remedial Investigation Report for Operable Units 4-10*. Because of the relative immobility of PCBs in soil, the low concentration of PCBs detected in the soil, the great depth to groundwater (approximately 280 feet) at OU 5, and results of vadose zone contaminant fate and transport modeling, groundwater contamination by PCBs from OU 5 was not considered likely.

2.1.3 Summary of Risks

2.1.3.1 *Human Health*

Potential human health effects associated with the non-remediated site were evaluated to provide a baseline risk to determine if remediation was necessary according to EPA guidelines. The evaluation began with identification of chemicals present at the site that pose a potential risk to human health based on their prevalence and concentration in the environment and their inherent toxicity. For OU 5, risks were assessed for SWMU 17 based upon reported PCB concentrations. A similar risk assessment was not made for SWMU 33 because there is no evidence that PCBs have been released to the environment from activities inside the building.

Next, a toxicity assessment was conducted to estimate the relationship between the extent of exposure to a contaminant and the increased likelihood and/or severity of adverse effects. The next step in the risk assessment was to perform an exposure assessment to evaluate pathways by which humans could possibly contact contaminants. The final step consisted of determining the magnitude and probability of current and future human health risks associated with the identified contaminant of concern. Both carcinogenic and noncarcinogenic risks were evaluated.

In conducting an assessment as described, the health effects that could result from all applicable exposures are evaluated. For personnel who may be working on SWMU 17 within OU 5, effects that could result from direct exposure to the contaminants as a result of the soil coming into direct contact with the skin, from inadvertent direct ingestion of the soil, or from inhalation of dust particles were evaluated. Exposure to the contaminants for others not directly working on SWMU 17 was restricted to the inhalation pathway.

For comparison purposes, a hypothetical future case was calculated to show what might happen if SWMU 17 were released for public use and a residence was constructed on the site. For this case, additional health effects were evaluated, including consumption of beef, vegetables, and fruit grown on site.

2.1.3.1.1 ***Noncarcinogenic Risk***. Noncarcinogenic risks are calculated as follows: The potential for noncarcinogenic health effects is estimated by comparing a daily intake of a compound through a specific exposure route to a reference dose for that compound. The ratio of the intake to reference dose for an individual chemical is termed the hazard quotient (HQ). A HQ greater than 1 indicates the potential for adverse health effects, since the intake exceeds the reference dose. A hazard index (HI) is calculated by adding all the HQs for a specific pathway. A residual HI of 1 or less means that, even without cleanup, insufficient contamination exists to cause adverse noncancer health effects during a normal human lifetime. For PCB concentrations in soils at SWMU 17, calculated cumulative noncarcinogenic hazard levels for all current and future cases are less than 1.

2.1.3.1.2 ***Carcinogenic Risks***. The excess lifetime cancer risk is the incremental increase in the likelihood of getting cancer if exposed to site contaminants as compared to the probability of that with no exposure to site contaminants. These cancer risks are stated as probabilities. A risk of 1E-6 for example, represents the probability that one person in one million exposed to a carcinogen over a lifetime of 70 years will develop cancer. The EPA has set a 1E-4 to 1E-6 risk range as the "point of departure" for taking action at a Superfund site.

All SWMU 17 carcinogenic risks fall below or within the risk range of 1E-4 to 1E-6. Carcinogenic risks for two of the potential receptors–the current on-site worker and the future on-site resident–are calculated to be within the acceptable range. Carcinogenic risks for all other potential receptors are below the acceptable range. The on-site worker risk is calculated to be just within the acceptable range. The assumptions used in this calculation are conservative (e.g., assumes a worker will be on SWMU 17 for 250 days per year for 25 years).

For the future on-site resident scenario, the assumptions used in these calculations are again conservative. For example, this scenario assumes an incidental soil ingestion rate of 200 milligrams per day (mg/day) for a child and 100 mg/day for an adult with all of the ingested soil emanating from SWMU 17. In addition, it is assumed that 75 percent of all beef consumed by a future SWMU 17 resident comes from cattle that have grazed on SWMU 17.

Further, *EPA Guidance on Remedial Actions for Superfund Sites with PCB Contamination* recommends that remedial action be considered when PCB levels exceed 1 part per million (ppm) for residential land use and 10 to 25 ppm for industrial land use. All available data for OU 5 indicate that soil contamination is below the most stringent of these levels.

2.1.3.2 *Ecological Risk*

OU 5 was also evaluated qualitatively and semi-quantitatively for ecological risks. There is no indication that this area is a critical habitat for any endangered or threatened species. The contaminant of concern is PCB Aroclor 1260. This compound is toxic and bioaccumulates. However, the levels of PCB were found to be too low to cause any direct toxic effects on

wildlife. A model was used to evaluate the effects of bioaccumulation on raptors by ingestion of small animals and birds. The PCB levels at OU 5 were found to be lower than levels that could cause effects in raptors or other wildlife.

2.1.4 Description of the No-Action Alternative

As a result of this extensive review and analysis, it is determined that no remedial action is necessary at OU 5 to ensure continued protection of human health and the environment. In the process of arriving at this conclusion, several alternatives were examined for SWMU 17 as outlined in the *Final Feasibility Study Report for Operable Units 5, 6, 7, and 10* (Sections 3.1.6 to 3.1.14). In addition to No Action, institutional controls such as fences, emplacement of a soil cover over the lot, cement stabilization of the storage lot soil, removal of storage lot soil to an approved landfill, and incineration of the storage lot soil were all evaluated. Because no unacceptable risks to human health and the environment were identified for SWMU 17, the No Action alternative has been selected.

The designation of No Action for SWMU 33 is protective of human health and the environment and is cost-effective. Building 659 will continue to operate as a storage facility for an indeterminate length of time. Continued operation of the facility will be conducted according to TSCA regulation. Any future closure would be conducted under TSCA and BRAC requirements and satisfy RCRA Corrective Action obligations as specified in the TEAD-N FFA. The statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element will be addressed, as appropriate, by any later remedy. Review of this site and storage activities will be ongoing as the Army continues to develop final plans for TEAD-N. The FFA specifies that TEAD-N properties will be subject to a rigorous process to ensure compliance with all appropriate regulations prior to transfer to non-Army use. This process is designed to comply with CERCLA regulations; that is, the final disposition of SWMU 33 will protect human health and the environment.

Section 3

Record of Decision for Operable Unit 6

DECLARATION OF THE RECORD OF DECISION FOR OPERABLE UNIT 6

Operable Unit Name and Location

OU 6 is located in the Maintenance Area of TEAD-N, Tooele, Utah. The SWMUs in this OU are SWMU 9, the Drummed Radioactive Waste Storage Area, and SWMU 18, the Radioactive Waste Storage Building.

SWMU 9 consists of a concrete pad and nearby field area that were reportedly used for temporary storage of drummed low-level radioactive waste. SWMU 18 consists of a secured room in Building 659 and is an active facility for storing low-level radioactive materials.

Statement of Basis and Purpose

This decision document records the selected remedy for OU 6 at TEAD-N. The action was chosen in accordance with CERCLA, as amended by SARA, and to the extent practicable, the NCP. The decision is based upon the Administrative Record for this OU.

The EPA and the State of Utah concur with the selected remedy.

Description of the Selected Remedy: No Action

The selected remedy for OU 6 is No Action. Current conditions at SWMU 9 do not present unacceptable risks to human health and the environment so no action is appropriate. SWMU 18, the Radioactive Waste Storage Building, is designated as No Action because the USEPA is deferring authority to existing Nuclear Regulatory Commission (NRC) jurisdiction and to closure under BRAC requirements, which will meet CERLCA requirements and satisfy RCRA Corrective Action obligations specified in the TEAD-N FFA.

Declaration Statement

No remedial action is necessary at OU 6 to ensure continued protection of human health and the environment. SWMU 18 is currently active, is a permitted NRC facility, and is also subject to the TEAD-N RCRA Post Closure Permit as specified in Section 5 of the TEAD-N FFA. The facility would be investigated under NRC, RCRA, and BRAC regulations if it is closed or the function changed at any future time. Conditions at SWMU 9 are protective of human health and the environment.

Signature and Support Agency Acceptance of the Remedy

Jesse L. Brokenburr
COL, OD
Commanding
Tooele Army Depot

Date

Signature and Support Agency Acceptance of the Remedy

Lewis D. Walker,
Deputy Assistant Secretary of the Army
(Environment, Safety, and Occupational Health)

Date

Signature and Support Agency Acceptance of the Remedy

William P. Yellowtail
Regional Administrator,
Region VIII, USEPA

Date

Signature and Support Agency Acceptance of the Remedy

_____ _____

Dianne R. Nielson, Ph.D.
Executive Director
Utah Department of Environmental Quality

Date

3.0 DECISION SUMMARY FOR OPERABLE UNIT 6

3.1 SCOPE AND ROLE OF OPERABLE UNIT 6

Operable Unit 6, which consists of SWMU 9, the Drummed Radioactive Waste Storage Area and SWMU 18, the Radioactive Waste Storage Facility, is located in the Maintenance Area of TEAD-N (Figure 3-1). These areas are both associated with past or present storage of radioactive materials. Action on this OU will be to continue to protect the public health and the environment from possible risks due to current or future exposure to contaminated soils or groundwater.

3.1.1 Description

SWMU 9, the Drummed Radioactive Waste Storage Area, is located in the Maintenance Area of TEAD-N and consists of a concrete pad and a nearby field that were reportedly used for the temporary storage of drummed low-level radioactive waste.

SWMU 18, the Radioactive Waste Storage Facility in Building 659, is located in the Maintenance Area of TEAD-N. It is a walled-off and locked section approximately 20 feet by 20 feet in size, in the northeastern corner of the building. It is a facility used currently to store NRC-licensed radioactive materials in Department of Transportation (DOT)-approved containers within the building.

3.1.2 Characteristics

SWMU 9 consists of TEAD-N areas that were used for temporary storage of drummed low-level radioactive wastes. Because of concerns that radioactive materials may have contaminated TEAD-N, containers suspected of containing radioactive wastes were removed in 1978 for off-site disposal by the TEAD-N Radiation Protection Office. There are no records that identify the exact storage locations of the containerized waste and no indication that any radioactive spills occurred at SWMU 9. SWMU 9 is in a sparsely vegetated industrial area. Radiological surveys were conducted in the areas suspected to have been locations for the storage of radioactive waste containers, and only background levels of radiation were detected. The two areas surveyed that were thought to have been used for radiological container storage are a concrete pad which now holds a small wooden shed and a field that was being used to store 4-wheel-drive pickup trucks at the time of the RI.

SWMU 18, the Radioactive Waste Storage facility in Building 659, began operating in 1975. Wastes stored within the facility include radiation-detection meters, compasses, sights, range finders, and radioactive luminous compounds. Because of the small amount of material stored, waste removal occurs only once every 5 years. NRC regulations control the conditions for storing and monitoring the radioactive waste. There is no evidence that any uncontrolled release to environmental pathways has occurred as a result of operations of this facility.

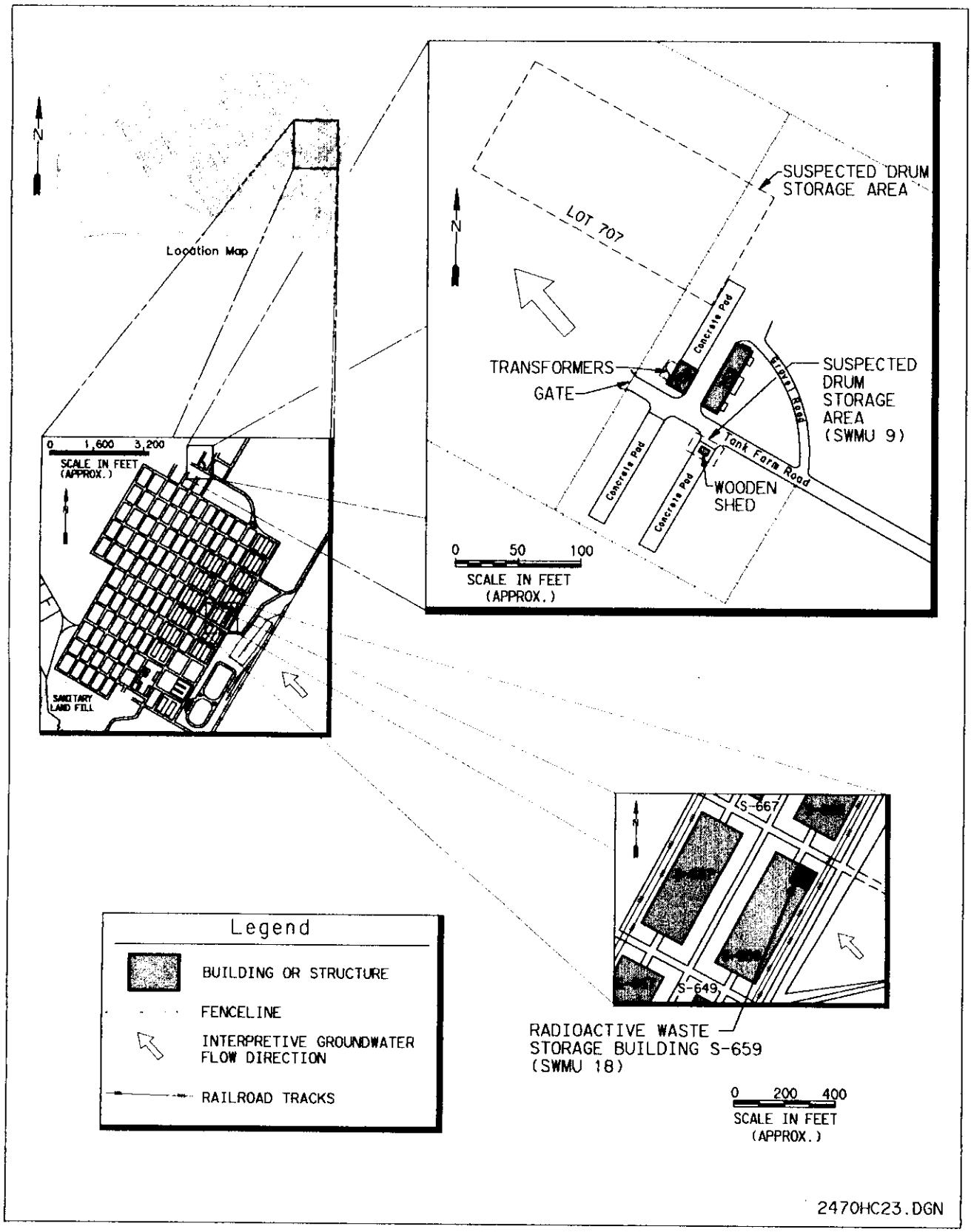

Figure 3-1. Location Map of Operable Unit 6 and SWMUs 9 and 18 at Tooele Army Depot-North Area

Because the facility is operated in complete compliance with a NRC permit and there is no evidence or data to indicate that contaminated wastes have been released to the environment from operations of the Building 659 facility, no sampling or analytical investigations were conducted at SWMU 18.

3.1.3 Summary of Risks

Radiological surveys were conducted in the suspected drum storage areas of SWMU 9 as described in Section 6.1.2 of the *Final Remedial Investigation Report for Operable Units 4-10.* The north survey area was gridded and a walking survey was conducted over the entire area, using a hand-held probe with a 3-foot extension. Because of the presence of 4-wheel-drive vehicles in the survey area, it is estimated that approximately 90-percent coverage was achieved (i.e., only the soil directly under vehicle tires was not surveyed).

It was determined that an alpha radiation survey was not necessary because no elevated beta/gamma readings were reported and the beta/gamma radiation meter used was sensitive to all potential alpha emissions. Because there are no identified contaminants of concern for SWMU 9, a risk assessment was not performed.

Radiation surveys are conducted periodically at SWMU 18, as required by the NRC regulations. These surveys indicate that no uncontrolled releases have occurred and that the storage area is being properly controlled and maintained. Because there are no identified contaminants of concern for SWMU 18, a risk assessment was not performed.

3.1.4 Description of the No-Action Alternative

Because there are no indications of contamination at OU 6, No Action is the only remedial action that was evaluated and thus is the recommended alternative.

For SWMU 18, continued operation of the facility will be regulated by the NRC. Any future closure would be completed under NRC and the BRAC program, and satisfy RCRA Corrective Action obligations as specified in the TEAD-N FFA. The statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element will be addressed, as appropriate, by any later remedy. Review of this site and storage activities will be ongoing as the Army continues to develop final plans for TEAD-N. In October 1992, the Community Environmental Response Facilitation Act (CERFA) (Public Law 102-426) amended Section 120 (b) of CERCLA, establishing new requirements for contamination assessment, cleanup, and regulatory agency notification and concurrence for Federal facility closures. CERFA requires the Federal government, before termination of Federal activities on real property owned, to identify property where no hazardous substances are stored, released, or disposed. CERFA designations must be concurred with by the EPA. These requirements are being implemented at TEAD-N. This process is designed to comply with CERCLA regulations; that is, the final disposition of SWMU 18 will protect human health and the environment.

comply with CERCLA regulations; that is, the final disposition of SWMU 18 will protect human health and the environment as directed by CERCLA.

Section 4

Record of Decision for Operable Unit 7

DECLARATION OF THE RECORD OF DECISION FOR OPERABLE UNIT 7

Operable Unit Name and Location

OU 7 contains SWMU 5, the Pole Transformer PCB Spill Site, which is located in the south-central portion of TEAD-N, Tooele, Utah.

Statement of Basis and Purpose

This decision document records the selected remedy for OU 7 at TEAD-N. The action was chosen in accordance with CERCLA, as amended by SARA, and to the extent practicable, the NCP. The decision is based upon the Administrative Record for this OU.

The EPA and the State of Utah concur with the selected remedy.

Assessment of the SWMU

Actual or threatened releases of hazardous substances from this SWMU, if not addressed by implementing the action selected in this ROD, may present an endangerment to public health or the environment.

Description of the Selected Remedy

The function of the remedy selected for Operable Unit 7 is to ensure protection of public health and the environment from exposure to contamination by PCB, dioxins, and dibenzofurans at SWMU 5, the Pole Transformer PCB Spill Site.

The components of the remedy are:

- Fill the excavated hole
- Cover the site with 10 inches of clean soil
- Cover the soil with gravel

In addition to protecting human health, this remedy will provide additional protection to cattle and wildlife by physically covering the contaminated soil.

Declaration Statement

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative

treatment technologies to the maximum extent practicable for the SWMU. However, because treatment of the principal threat of the SWMU was not found to be practicable, this remedy does not satisfy the statutory preference for treatment as a principal element of the remedy. The size of the spill area and the fact that there are no on-site contaminant levels that represent risks outside of EPA targets preclude a remedy in which contaminants could be excavated and treated effectively.

Signature and Support Agency Acceptance of the Remedy

Jesse L. Brokenburr
COL, OD
Commanding
Tooele Army Depot

Date

Signature and Support Agency Acceptance of the Remedy

Lewis D. Walker
Deputy Assistant Secretary of the Army
(Environment, Safety, and Occupational Health)

Date

Signature and Support Agency Acceptance of the Remedy

William P. Yellowtail
Regional Administrator,
Region VIII, USEPA

Date

Signature and Support Agency Acceptance of the Remedy

Dianne R. Nielson, Ph.D.
Executive Director
Utah Department of Environmental Quality

Date

4.0 DECISION SUMMARY FOR OPERABLE UNIT 7

4.1 SCOPE AND ROLE OF OPERABLE UNIT 7

Operable Unit 7, which contains SWMU 5 in the southeastern area of TEAD-N, is the location of a 1976 transformer fire, which spilled PCB-containing oils, dioxins, and dibenzofurans on the ground near the utility pole on which the transformer had been mounted (Figure 4-1). Action on this OU will be to protect the public health and the environment from possible risks due to current or future exposure to contaminated soils or groundwater.

4.1.1 Description

OU 7 resulted when, in 1976, a fire occurred in a pole-mounted electrical transformer. During the fire, the transformer leaked PCB-containing oil to the surrounding soils. The oil-containing soils were excavated in an area adjacent to and north of the pole. The excavation measured approximately 5 feet by 5 feet wide and 3 feet deep. Eleven 55-gallon drums of soil were collected from the excavation. Subsequently, the drums were properly disposed of off site. The area of the excavation was not backfilled.

4.1.2 Characteristics

An earlier investigation at OU 7 included the collection of a composite sample from soil removed after the fire which was analyzed for PCBs. This sample contained 3.45 micrograms per gram (μg/g) of PCB 1260. Recent sampling and analysis characterized the surface and subsurface soils within and immediately surrounding the former excavation to determine if residual contamination is present. Some contaminants remained after the cleanup of soils in 1976. Residual contamination consists of the PCB Aroclor 1260, which is present in low but detectable concentrations in three of four surface-soil samples and in one of the subsurface-soil samples collected in the excavation. PCBs were not detected in subsurface samples collected at depths of up to 5 feet around the perimeter of the excavation. Detectable concentrations of polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) were also present in most of the samples collected. These contaminants are presumably the result of combustion of PCBs. These contaminants were detected in the parts per trillion range.

PCBs are generally considered chemically and environmentally stable, exhibiting low volatilization rates. PCBs, however, may enter the atmosphere through adsorption to particles which become airborne. The fate and transport of PCDDs and PCDFs are similar to the fate and transport of PCBs. They are chemically and environmentally stable, relatively insoluble in water, highly persistent, and have long environmental half-lives.

The most likely exposure pathways at OU 7 are via dermal contact, incidental soil ingestion, inhalation of fugitive dust, and ingestion of beef derived from cattle potentially exposed to

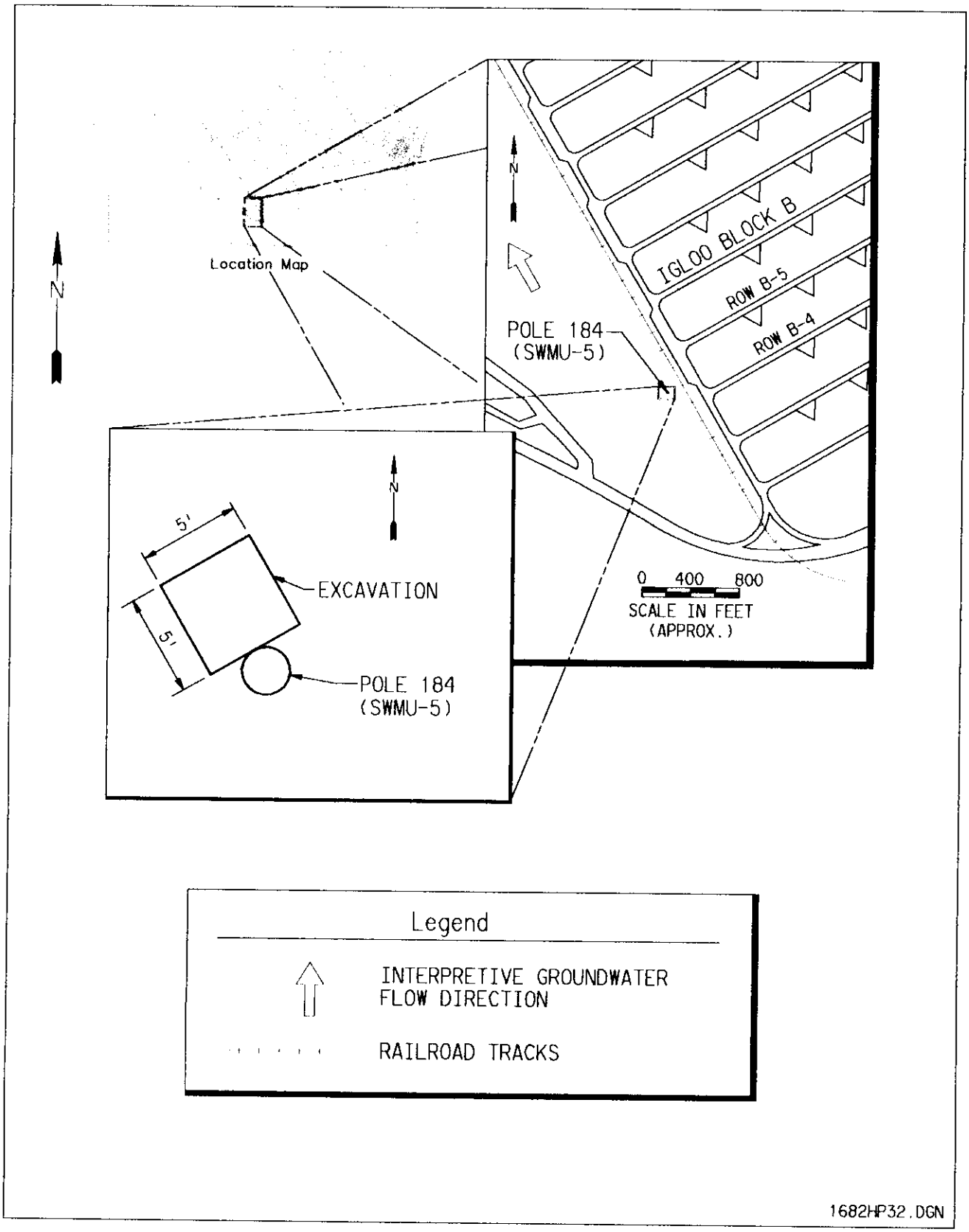

Figure 4-1. Location Map for Operable Unit 7, the Pole Transformer PCB Spill Site (SWMU 5)

contamination while grazing at TEAD-N. However, fugitive dust emissions from OU 7 are minimal because of the small size of the area.

Although PCBs, PCDDs, and PCDFs are not appreciably taken up by plants, they do bioconcentrate in fatty tissue in animals because of their stability, high lipid solubility and/or binding, and low water solubility. In addition to the low bioavailability of PCBs, PCDDs, and PCDFs in soils, the small size of OU 7 minimizes the likelihood of possible bioaccumulation. Currently, OU 7 is available to grazing cattle on TEAD-N but is not available for homegrown produce; therefore, homegrown produce consumption is not considered a complete pathway for current land use conditions, but is for a future residential scenario.

Because the groundwater is approximately 300 feet below the surface at OU 7 and the relative immobility of PCBs, PCDDs, and PCDFs in soil, the possibility of groundwater contamination from OU 7 soils is not considered likely. The results of vadose zone contaminant fate and transport modeling confirm this. In addition, PCB soil cleanup levels based on direct contact assumptions will generally provide sufficient protection of groundwater.

4.1.3 Summary of Risks

4.1.3.1 *Human Health*

Potential human health effects associated with the non-remediated site were evaluated to provide a baseline risk to determine if remediation was necessary according to EPA guidelines. The evaluation began with identification of chemicals present at the site that pose a potential risk to human health based on their prevalence and concentration in the environment and their inherent toxicity. For OU 7, risks were assessed using PCB concentrations found during the RI (see Section 7.1.3 of the *Final Remedial Investigation Report for Operable Units 4-10*).

Next, a toxicity assessment was conducted to estimate the relationship between the extent of exposure to a contaminant and the increased likelihood and/or severity of adverse effects. The next step in the risk assessment was to perform an exposure assessment to evaluate pathways by which humans could possibly contact contaminants. The final step consisted of determining the magnitude and probability of current and future human health risks associated with the identified contaminants of concern.

In conducting an assessment as described, the health effects, both carcinogenic and non-carcinogenic, that could result from all applicable exposures were evaluated. For personnel who may be working on OU 7, effects that could result from direct exposure to the contaminants as a result of the soil coming into direct contact with the skin, from inadvertent direct ingestion of the soil, or from inhalation of dust particles were evaluated. Exposure to the contaminants for others not directly working on OU 7 was evaluated in two ways: by inhalation of dust particles originating from OU 7 and by consumption of beef from cows that may have grazed on the site.

For comparison purposes, a hypothetical future case was calculated to show what might happen if OU 7 were released for public use and a residence was constructed next to the site. For this case, additional health effects were evaluated, including consumption of vegetables and fruit grown on site.

4.1.3.1.1 ***Noncarcinogenic Risk.*** Noncarcinogenic risks are calculated as follows: The potential for noncarcinogenic health effects is estimated by comparing a daily intake of a compound through a specific exposure route to a reference dose for that compound. The ratio of the intake to reference dose for an individual chemical is termed the hazard quotient (HQ). A HQ greater than 1 indicates the potential for adverse health effects, since the intake exceeds the reference dose. A hazard index (HI) is calculated by adding all the HQs for a specific pathway. A residual HI of 1 or less means that, even without cleanup, insufficient contamination exists to cause adverse noncancer health effects during a normal human lifetime. Using the RI-derived concentrations for PCBs in the soils on OU 7, calculated cumulative noncarcinogenic hazard levels for all current and future cases are less than 1. This means that, even without cleanup, insufficient contamination exists to cause adverse non-cancer health effects during a normal human lifetime.

4.1.3.1.2 ***Carcinogenic Risk.*** The excess lifetime cancer risk is the incremental increase in the likelihood of getting cancer if exposed to site contaminants as compared to the probability of that with no exposure to site contaminants. These cancer risks are stated as probabilities. A risk of 1E-6 for example, represents the probability that one person in one million exposed to a carcinogen over a lifetime of 70 years will develop cancer. The EPA has set a 1E-4 to 1E-6 risk range as the "point of departure" for taking action at a Superfund site.

Residual concentrations of PCBs, PCDDs, and PCDFs were found to be present at OU 7. However, because of the low contaminant concentrations detected and the extremely small area of OU 7, the threat to public health and the environment is small. Carcinogenic risk factors for OU 7 are within or below the risk range of 1E-4 to 1E-6. Further, *EPA Guidance on Remedial Actions for Superfund Sites with PCB Contamination* recommends that remedial action be considered when PCB levels exceed 1 ppm for residential land use and 10 to 25 ppm for industrial land use. All available data for OU 7 indicate that soil contamination is below the most stringent of these levels.

4.1.3.2 *Ecological Risk*

There is no indication that this area is a critical habitat for any endangered or threatened species. The contaminants of concern–PCBs, dioxins, and furans–are toxic and tend to bioaccumulate to varying degrees; however, the levels found were too low to cause any direct toxic effects on wildlife. A model was used to evaluate the effects of bioaccumulation on raptors by ingestion of small mammals and birds. The contaminant levels at OU 7 were found to be lower than levels that would cause adverse effects in raptors or other wildlife.

4.1.4 Description of Alternatives

Six remedial alternatives were considered for this OU. Applicable or relevant and appropriate requirements (ARARs) for these alternatives are tabulated in Table 4-1. Also, refer to Section 5.1.8 of the *Final Feasibility Study for Operable Units 5, 6, 7, and 10.*

Alternative 1: No Action. Site soils would remain in place.

Alternative 2: Institutional Controls. This alternative does not involve active remediation; site soils would be left in place. However, this alternative would limit the potential for human and fauna exposure to site contaminants by placing controls on access to the site. These controls would include fences or other barriers, warning signs, and regular surveillance. Deed restrictions would be developed for future protection in the event the property were released to the public.

Alternative 3: Soil Cover. This alternative involves filling the excavation hole and placing a 10-inch-thick clean soil and 2-inch-thick gravel cover over the OU. A 10-foot-by-10-foot area was chosen for remediation. This conservatively covers the known areas of contamination. This alternative does not involve active remediation; site soils would be left in place beneath the cover. However, this alternative would reduce the potential for human and fauna exposure to site contaminants and possible stumbling hazards by placing a soil cover over the area. It would also comply with current TSCA standards for back-filling excavated spill areas with clean soil.

Alternative 4: Stabilization. This alternative involves mixing the contaminated soil with a solidifying agent such as cement. Hardening of the solidifying agent binds and reduces the mobility of the soil contaminants. Stabilization can either be done *in situ* or in an external mixing vessel. There would be an overall volume increase. The soils would be left in place, but relatively immobilized.

Alternative 5: Landfill Disposal. This alternative involves excavation of contaminated soil and hauling it to a TSCA-approved disposal site. Clean soil from TEAD-N would be used to backfill the excavation. For OU 7, a volume of 20 cubic yards (10 feet by 10 feet by 6 feet deep minus the volume of the existing excavation) was used for remediation estimate purposes.

Alternative 6: Incineration. This alternative involves excavation of 20 cubic yards of potentially contaminated soil and hauling it to a TSCA-approved site for incineration. Clean soil from TEAD-N would be used to backfill the excavation.

4.1.5 Summary of the Comparative Analysis of Alternatives

Table 4-2 provides a comparative analysis of Alternatives 1 through 6 for OU 7. Each alternative is discussed in more detail in Section 5.1.9 of the *Feasibility Study for Operable Units 5, 6, 7, and 10.*

Table 4-1. Compliance of Alternatives with ARARs for OU 7

Statute	Alternative 1: No Action		Alternative 2: Institutional Controls		Alternative 3: Soil Cover		Alternative 4: Stabilization		Alternative 5: TSCA Approved Landfil Disposal		Alternative 6: Incineration		ARAR Category
	Meets Stds.	Does Not Meet Stds.	Meets Stds.	Does Not Meet Stds.	Meets Stds.	Does Not Meet Stds.	Meets Stds.	Does Not Meet Stds.	Meets Stds.	Does Not Meet Stds.	Meets Stds.	Does Not Meet Stds.	
TSCA-Soils		X		X	X			X	X		X		Chemical Specific
EPA PCB Guidance-Soils	X*		X*		X*		X*		X*		X*		Chemical Specific
OSHA	NA		X		X		X		X		X		Action Specific
Utah Air Conservation Act	NA		NA		X**		X**		X**		X**		Action Specific
Utah Solid & Hazardous Waste Act	NA		NA		NA		NA		X		X		Action Specific
Utah Solid Waste Mgmt. Act	NA		NA		NA		NA		X		X		Chemical Specific
Safe Drinking Water Act (MCLs)	X		X		X		X		X		X		Chemical Specific
40 CFR Part 268 Landfill Disposal	NA		NA		NA		NA		NA		X		Action Specific
Utah Groundwater Protection Rule	X		X		X		X		X		X		Chemical Specific
Utah Safe Drinking Water Act (MCLs)	X		X		X		X		X		X		Chemical Specific
Hazardous Materials Transport Act	NA		NA		NA		NA		X		X		Action Specific

*=to be considered (TBC)
**=action-specific, would apply during cleanup
NA=not applicable

Table 4-2. Comparative Analysis of Remedial Alternatives for OU 7

Criterion	Alternative 1: No Action	Alternative 2: Institutional Controls	Alternative 3: Soil Cover	Alternative 4: Stabilization	Alternative 5: Landfill Disposal	Alternative 6: Incineration
Overall Protection	Meets the remedial-action objectives of protecting human health and the environment.	Meets the remedial-action objectives of protecting human health and the environment.	Meets the remedial-action objectives of protecting human health and the environment.	Meets the remedial-action objectives of protecting human health and the environment.	Meets the remedial-action objectives of protecting human health and the environment.	Meets the remedial-action objectives of protecting human health and the environment.
Compliance with ARARs[a]	Meets TSCA[b] and EPA standards for clean residual soils of less than 1 mg/kg PCBs. However does not meet TSCA requirements for clean soil fill material. Meets SDWA MCLs.	Meets TSCA[b] and EPA standards for clean residual soils of less than 1 mg/kg PCBs. However does not meet TSCA requirements for clean soil fill material. Would meet OSHA[c] requirements for worker health and safety during implementation. Meets SDWA MCLs.	Meets TSCA and EPA standards for a clean soil of less than 1 mg/kg PCBs. Would comply with TSCA requirement to fill excavated spill area with clean soil. Would meet OSHA requirements for worker health and safety during implementation. Meets SDWA MCLs.	Meets TSCA[b] and EPA standards for clean residual soils of less than 1 mg/kg PCBs. However does not meet TSCA requirements for clean soil fill material. Would meet OSHA requirements for worker health and safety during implementation. Meets SDWA MCLs.	Meets TSCA and EPA standards for a clean soil of less than 1 mg/kg PCBs. Would meet OSHA requirements for worker health and safety during implementation. Also meets State and Federal Land Disposal and Hazard Waste Handling regulations. Meets SDWA MCLs.	Meets TSCA and EPA standards for a clean soil of less than 1 mg/kg PCBs. Would meet OSHA requirements for worker health and safety during implementation. Also meets State and Federal Land Disposal and Hazardous Waste Handling regulations. Meets SDWA MCLs.
Long-Term Effectiveness	Would meet the remediation goals of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. The qualitative risk to ecological receptors would be low.	Would meet the remediation goals of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. The qualitative risk to ecological receptors would be low.	Would meet the remediation goals of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. The qualitative risk to ecological receptors would be low.	Would meet the remediation goals of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. The qualitative risk to ecological receptors would be low.	Would meet the remediation goals of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. The qualitative risk to ecological receptors would be low.	Would meet the remediation goals of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. The qualitative risk to ecological receptors would be low.
Reduction of Toxicity, Mobility, and Volume	There is no reduction of the toxicity, mobility, or volume of soil contaminants through treatment under this alternative.	There is no reduction of the toxicity, mobility, or volume of soil contaminants through treatment under this alternative.	There is no reduction of the toxicity, mobility, or volume of soil contaminants through treatment under this alternative.	There is no reduction of toxicity with this treatment. Mobility of contaminants is significantly reduced. There is an overall increase in volume due to the addition of solidifying agent.	There is no reduction of the toxicity, mobility, or volume of soil contaminants through treatment under this alternative.	Toxicity and mobility of contamination are permanently removed by this alternative. Waste volume is unchanged.

Table 4-2. Comparative Analysis of Remedial Alternatives for OU 7 (continued)

Criterion	Alternative 1: No Action	Alternative 2: Institutional Controls	Alternative 3: Soil Cover	Alternative 4: Stabilization	Alternative 5: Landfill Disposal	Alternative 6: Incineration
Short-Term Effectiveness	There are no short-term hazards to human health or the environment associated with this alternative.	Health concerns are the construction hazards associated with installation of a fence or other barrier. No disruption of wildlife is expected.	Health concerns are the construction hazards associated with installation of the soil cover. Temporary disruption of wildlife may occur during construction.	Health concerns are the construction hazards associated with the stabilization process. Temporary disruption of wildlife may occur during stabilization.	Health concerns are the construction hazards associated with the soil removal, haulage, and backfill. Temporary disruption of wildlife may occur during construction.	Health concerns are the construction hazards associated with the soil removal, haulage, and backfill. Temporary disruption of wildlife may occur during construction.
Implementability	There are no implementability concerns.	Readily implementable.	Readily implementable.	Readily implementable.	Readily implementable.	Readily implementable.
Cost	No cost.	Capital: $3,800 O&M/yr[d]: $400 PW[e] @ 5%: $6,200 Total: $10,000	Capital: $850 O&M/yr: 0 PW @ 5%: 0 Total: $850	Capital: $2,700 O&M/yr: 0 PW @ 5%: 0 Total: $2,700	Capital: $2,600 O&M/yr: 0 PW @ 5%: 0 Total: $2,600	Capital: $41,000 O&M/yr: 0 PW @ 5%: 0 Total: $41,000
State Acceptance	NA[f]	NA	The State of Utah concurs with the selection of Alternative 3.	NA	NA	NA
Community Acceptance	NA	NA	As outlined in the Responsiveness Summary, public comments have been addressed and, where appropriate, incorporated into the selected remedy.	NA	NA	NA

[a]ARARs=Applicable or Relevant and Appropriate Requirements.
[b]TSCA=Toxic Substances Control Act.
[c]OSHA=Occupational Safety and Health Act.
[d]O&M/yr=operation and maintenance/year.
[e]PW=present worth.
[f]NA=not applicable.

4.1.6 Selected Remedy

The selected remedy for OU 7 SWMU 5 is **Alternative 3: Soil Cover**. Based upon current information, this alternative provides the best balance of trade-offs when evaluated against the nine EPA criteria as follows:

Overall protection of human health and the environment. This alternative meets the remedial-action objectives.

Compliance with ARARs. This alternative meets the EPA guidance and the TSCA standard for clean soil of less than 1 mg/kg PCBs and current TSCA standards for back-filling excavated spill areas with clean soil. This alternative would also comply with Occupational Safety and Health Administration (OSHA) requirements for worker health and safety during the installation of the soil cover. The Utah Air Conservation Act would be the action-specific ARAR to regulate fugitive dust and particulates. Federal and Utah drinking water maximum contaminant levels (MCLs) are met by this alternative.

Long-term effectiveness and permanence. The baseline risk assessment indicates that the residual risk for this alternative would meet the remediation goals of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. By placing a clean soil cover on the site, this alternative could exceed the remediation goals by further reducing the residual excess cancer risk to on-site workers, current on-site residents, and current off-site residents. The qualitative ecological risk assessment also indicates that the potential risk to ecological receptors would be low. The installation of a soil cover is not expected to negatively impact the environment.

Reduction of toxicity, mobility, or volume through treatment. There is no reduction of the toxicity or volume of soil contaminants through treatment under this alternative. Mobility of windblown soil that may contain adsorbed PCBs would be reduced by this alterative.

Short-term effectiveness. Human health concern associated with the implementation of this alternative are limited to the construction hazards to personnel involved with the installation of the soil cover at the site. The implementation time would be sufficiently short (less than 1 week), so that the health risk due to potential exposure to site contaminants would be negligible. Wildlife may be temporarily disturbed by the construction activities.

Implementability. The placement of a soil cover over the site involves simple construction activities. Contractors are readily available, so this alternative is readily implementable.

Cost. Costs for the selected remedy are summarized in Table 4-3.

Table 4-3. Total Capital Costs

Remedial Component	Units	Unit Cost	Cost
1. Haul and Place Soil	6.5 CY	21	$135
2. Compact	6.5 CY	2	13
3. Haul and Place Gravel	5 CY	9	45
4. Sample and PCB Analysis	1	400	400
5. Indirects at 10 percent			59
6. Contingencies at 30 percent			198
Total Costs			$850

Note.—There are no annual operating or maintenance costs for this alternative.

4.1.7 Statutory Determinations

The selected remedy, fill and cover the spill site with clean soil, meets the statutory requirements of CERCLA Section 121 as follows:

Be protective of human health and the environment. Covering the spill area with clean soil will result in human health risks within or below EPA guidelines. The remedy will also result in acceptable ecological/wildlife risks.

Comply with ARARs. The selected remedy will comply with all state and federal ARARs and to-be-considered issues as follows:

- Toxic Substances Control Act
  -40 CFR 761
- EPA PCB Guidance-Soils
  -EPA/540/0-90 007
- Occupational Health and Safety Act
  -29 CFR 1910.120 Hazardous Waste Operations
- Utah Air Conservation Act 19-2-101
- Safe Drinking Water Act
- Utah Groundwater Protection Rule
- Utah Safe Drinking Water Act

Cost Effectiveness. The selected remedy is the least costly alternative other than No Action, which does nothing to reduce risks to human health and the environment.

Utilization of Permanent Solutions and Alternative Treatment to the Maximum Extent Possible. Covering the site is a practically permanent solution. The small size of the spill

area and very low contaminant concentration levels do not make alternative treatments practical.

The selected remedy represents the best trade-off of evaluation criteria as shown in Table 4-2. The remedy is permanently effective and reduces mobility of the contaminants. Health and environmental concern over the short term are negligible because the implementation time is very short. Labor and equipment are immediately available to implement the remedy. The public health/environment cost benefit ratio is determined to be the lowest of the evaluated alternatives.

State and local community review of the information, which has gone into preparation of the Administrative Record for OU 7, has all been favorable toward the selected remedy.

Section 5

Record of Decision for Operable Unit 10

DECLARATION OF THE RECORD OF DECISION FOR OPERABLE UNIT 10

Operable Unit Name and Location

OU 10 consists of the Box Elder Wash Drum Site (SWMU 41) located in the north-central section of TEAD-N, Tooele, Utah.

Statement of Basis and Purpose

This decision document records the selected remedy for OU 10 at TEAD-N. The action was chosen in accordance with CERCLA as amended by SARA, and to the extent practicable, the NCP. The decision is based upon the Administrative Record for this OU.

The EPA and the State of Utah concur with the selected remedy.

Assessment of the SWMU

Actual or potential releases of hazardous substances from the drums on this site, if not addressed by implementing the response selected in this ROD, may present a threat to public health, welfare, or the environment.

Description of the Selected Remedy

The function of the remedy selected for this OU is to remove the source of possible soil, surface water, and groundwater contamination that may occur because of the presence of 21 drums previously dumped into Box Elder Wash. The remedy addresses the removal of these drums and cleanup of areas where the contents of the drums have spilled onto the ground.

The components of the remedy are:

- Prepare and remove drums
- Remove small areas of stained soil
- Characterize waste materials
- Incinerate drummed materials

Declaration Statement

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The remedy utilizes permanent solutions and alternative

treatment technologies to the maximum extent practicable for this site. Because this remedy will not result in hazardous substances remaining on site above health-based levels, a 5-year review will not be required for this site.

Signature and Support Agency Acceptance of the Remedy

Jesse L. Brokenburr
COL, OD
Commanding
Tooele Army Depot

Date

Signature and Support Agency Acceptance of the Remedy

Lewis D. Walker
Deputy Assistant Secretary of the Army
(Environment, Safety, and Occupational Health)

Date

Signature and Support Agency Acceptance of the Remedy

William P. Yellowtail
Regional Administrator,
Region VIII, USEPA

Date

Signature and Support Agency Acceptance of the Remedy

Dianne R. Nielson, Ph.D.
Executive Director
Utah Department of Environmental Quality

Date

5.0 DECISION SUMMARY FOR OPERABLE UNIT 10

5.1 SCOPE AND ROLE OF OPERABLE UNIT 10

Operable Unit 10, which consists solely of SWMU 41, is an area containing 21 drums dumped in the bottom of Box Elder Wash. Action on this OU will be to protect human health and the environment from possible risks due to current or future exposure to contaminants.

5.1.1 Description

SWMU 41, the Box Elder Wash Drum Site, is located southeast of row J of the Igloo Storage Area in the north-central section of TEAD-N (Figure 5-1). The site consists of 21 drums located in the wash, which carries intermittent runoff from the southwestern corner of TEAD-N, north through the facility, and across the north-central TEAD-N boundary.

5.1.2 Characteristics

Operable Unit 10 (SWMU 41) was created when 21 drums were dumped off the eastern edge of Box Elder Wash into the lower bank and bottom of the wash. The drums are present in an approximately 200-foot-long stretch of the wash. Most of the drums are at least partially obscured by soil and/or vegetation. The soil cover appears to have resulted from sedimentation during periods of surface-water flow and from caving of the steep wash bank. The drums are in various stages of deterioration and have no obvious markings. The drums contain a substance that resembles roofing tar. There are small areas of stained soil and one area of a surface tar spill above the wash channel.

In April 1989, TEAD Environmental Management Office personnel collected samples from four of the open drums at the site. The samples were analyzed for certain organic compounds and for the characteristic of extraction procedure (EP) toxicity for selected metals. In addition to indicating the presence of several complex organic compounds, the analyses indicated that mercury was present in one sample at the minimum regulatory level for designation as a hazardous waste.

The scope of the Remedial Investigation included locating all of the drums, sampling of eight representative drums, sampling soils surrounding and downstream from the drums, and taking a biased sample at a tar spill above the wash. Analyses of the drums showed that they contained varying amounts of volatile organics, explosives, metals, and anions. However, toxicity characteristic leaching procedure (TCLP) analyses for metals of samples from the drums did not show any levels of leachable metals characteristic of hazardous waste. Soil samples indicated little, if any, contamination. One sample downstream of the drums showed a low concentration of pyrene. The biased sample collected from a small tar spill above the wash showed a concentration of nickel that exceeded background concentrations.

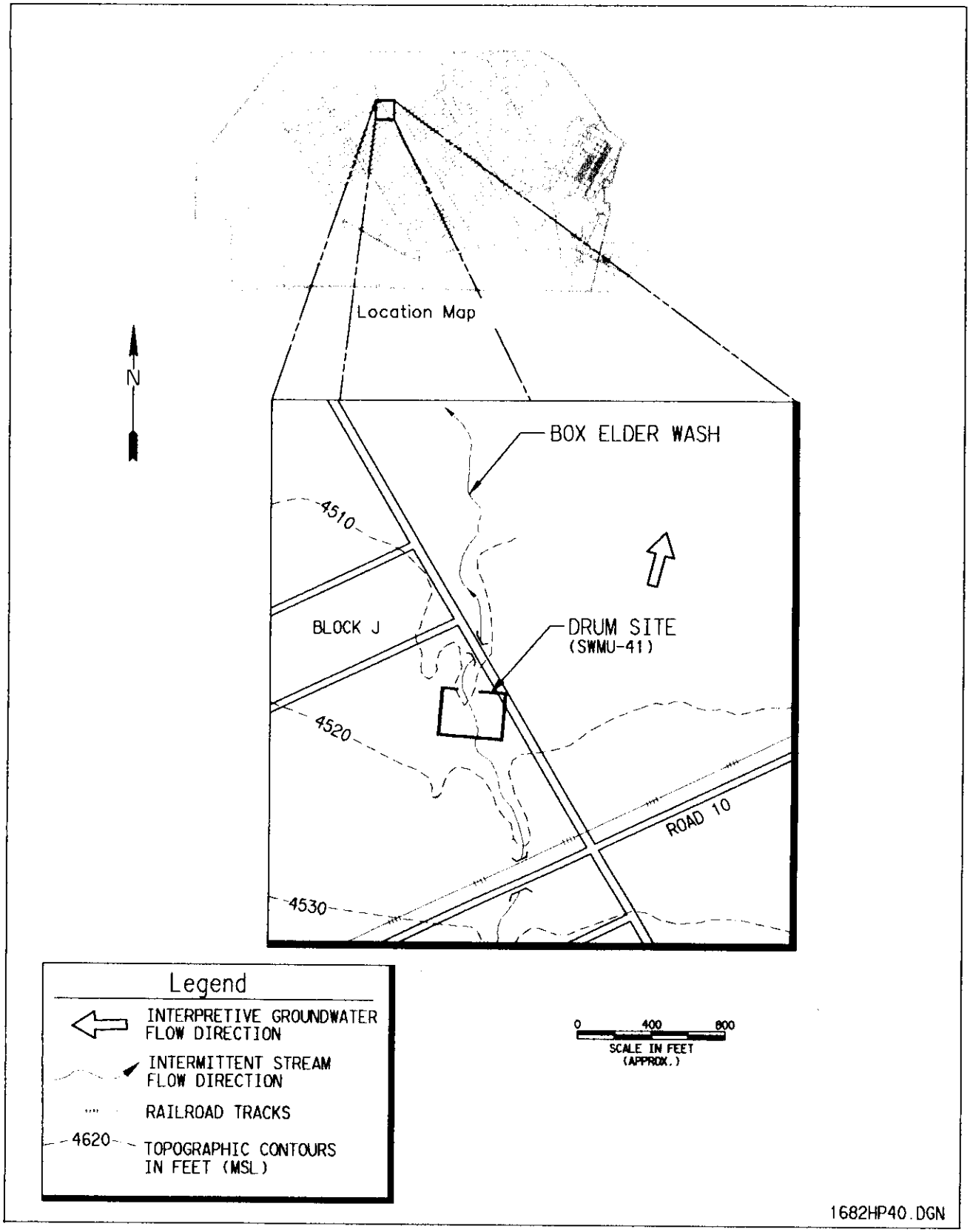

Figure 5-1. Location Map of OU 10, Box Elder Wash Drum Site (SWMU 41)

The drums are believed to be the only source of contamination at the site. An analysis has indicated that mercury was present in the drummed material at levels designated by the EPA as hazardous. All available analyses show that the drums contain a complex mixture of organic and inorganic compounds. The removal of these drums and any visibly contaminated soils will prevent any further spread of these contaminants to soils and water media.

For soils in Box Elder Wash, pyrene is a potential contaminant of concern, although it has been detected only in 1 of 13 samples at a low level. Pyrene strongly adsorbs to soil and is resistant to leaching. Pyrene exhibits low volatility, although it may enter the atmosphere through adsorption to airborne particles. Leaching of pyrene to groundwater at OU 10 is highly unlikely because the depth to groundwater is approximately 180 feet, the concentration of the contaminant is low, and pyrene has a strong adherence to soils. For soils that have been contaminated by material spilled from the drums, nickel could be a potential contaminant of concern if the soils were not removed. Nickel was detected in the sample taken from a tar spill above the wash. The elevated nickel in this sample reflects the nickel concentrations found in the drummed material. Nickel is not present above the method reporting limits in any of the soil samples collected from soils in the wash.

The most likely exposure pathways at OU 10 are via dermal contact, incidental soil ingestion, inhalation of fugitive dust, and ingestion of beef derived from cattle potentially exposed to contamination while grazing at TEAD-N. However, fugitive dust emissions from OU 10 are minimal because vegetative cover at this site limits potential dust emissions and OU 10 is located in a wash below ground surface.

Although pyrene is not appreciably taken up by plants, it does bioconcentrate in tissue because of its stability, high lipid solubility and/or binding, and low water solubility. The overall potential for pyrene to bioaccumulate at OU 10 is minimal because of the low concentration detected and the infrequency of detection.

Currently, OU 10 is available to grazing cattle on TEAD-N but is not available for homegrown produce; therefore, homegrown produce consumption was not considered a complete pathway for current land use conditions but was for a future residential scenario.

5.1.3 Summary of Risks

5.1.3.1 *Human Health*

Potential human health effects associated with the non-remediated site were evaluated in order to provide a baseline risk to determine if remediation was necessary according to EPA guidelines. The evaluation began with identification of chemicals present at the site that pose a potential risk to human health based on their prevalence and concentration in the environment and their inherent toxicity. Risks for OU 10 were assessed based upon reported pyrene in soil concentrations, assuming that the drums will be removed.

Next, a toxicity assessment was conducted to estimate the relationship between the extent of exposure to a contaminant and the increased likelihood and/or severity of adverse effects.

The next step in the risk assessment was to perform an exposure assessment to evaluate pathways by which humans could possibly contact contaminants. The final step consisted of determining the magnitude and probability of current and future human health risks associated with the identified contaminants of concern. Both carcinogenic and noncarcinogenic risks were evaluated.

The baseline risk assessment for OU 10 was designed to estimate the human health and environmental problems that could result if the drums were removed but soil contamination were not cleaned up. For personnel who may be working on the SWMU, effects that could result from direct exposure to the contaminants as a result of the soil coming into direct contact with the skin, from inadvertent direct ingestion of the soil, or from inhalation of dust particles were evaluated. Exposure to the contaminants for others not directly working on OU 10 was evaluated in two ways: by inhalation of dust particles originating from OU 10 and by consumption of beef from cows that may have grazed on the site.

For comparison purposes, a hypothetical future case was calculated to show what might happen if OU 10 were released for public use and a residence was constructed on the site. For this case, additional health effects were evaluated, including consumption of vegetables and fruit grown on site.

5.1.3.1.1 ***Noncarcinogenic Risk***. Noncarcinogenic risks are calculated as follows: The potential for noncarcinogenic health effects is estimated by comparing a daily intake of a compound through a specific exposure route to a reference dose for that compound. The ratio of the intake to reference dose for an individual chemical is termed the hazard quotient (HQ). A HQ greater than 1 indicates the potential for adverse health effects, since the intake exceeds the reference dose. A hazard index (HI) is calculated by adding all the HQs for a specific pathway. A residual HI of 1 or less means that, even without cleanup, insufficient contamination exists to cause adverse noncancer health effects during a normal human lifetime. For all current and future use cases evaluated for post drum removal, calculated non-cancer hazard levels are less than 1. This means that, even without cleanup other than drum removal, insufficient contamination exists to cause adverse noncancer health effects during a normal human lifetime.

5.1.3.1.2 ***Carcinogenic Risk***. The excess lifetime cancer risk is the incremental increase in the likelihood of getting cancer if exposed to site contaminants as compared to the probability of that with no exposure to site contaminants. These cancer risks are stated as probabilities. A risk of 1E-6 for example, represents the probability that one person in one million exposed to a carcinogen over a lifetime of 70 years will develop cancer. The EPA has set a 1E-4 to 1E-6 risk range as the "point of departure" for taking action at a Superfund site. Evaluation of

risks attributable to OU 10 after removal of the drums shows that all cancer risks calculated for current use conditions as well as the hypothetical future case fall below the risk range.

5.1.3.2 *Ecological Risk*

OU 10 (SWMU 41) was also evaluated qualitatively for ecological risks. The primary contaminant of concern at this site is pyrene. While pyrene has a potentially high biological hazard because of its toxicity and propensity to bioaccumulate, the overall risk at OU 10 is considered low because pyrene was detected at a low level in only one sample.

Several chemicals of concern were identified for the material in the drums at this site. These chemicals could be of concern to wildlife if they come into contact with these contaminants. Small mammals frequently burrow, nest, or otherwise utilize habitat formed by natural rock cairns, felled trees, or shrubs, as well as manmade formations such as piles of trash, lumber, etc. In this case, small mammals may utilize habitat created by the drums, thereby being exposed to these contaminants. Six of the contaminants identified within the drums are metals: barium, cadmium, chromium, lead, mercury, and silver. These contaminants are known to bioaccumulate to some degree, although there is evidence that they are eventually eliminated or transformed to other metabolites. Additionally, these inorganic contaminants are known to be toxic. Many of the other contaminants identified are also toxic and may bioaccumulate as well. Thus, it is advisable that these drums and the associated contaminants be removed as quickly as practicable in order to eliminate this source of environmental degradation.

Actual or threatened releases of hazardous substances from the drums on this site, if not addressed by implementing the response action selected in this ROD, may present a threat to public health or the environment.

5.1.4 Description of Alternatives

The drums at OU 10 could pose a threat to human health and the environment. Once the drums and stained soils are removed, the current condition of remaining soils would meet the remediation goals. Four remedial alternatives have been considered for this site.

Alternative 1: No Action. Site soils and the drums would remain in place.

Alternative 2: Institutional Controls. This alternative does not involve active remediation; site soils and the drums would be left in place. However, this alternative would limit the potential for human and fauna exposure to site contaminants by placing controls on access to the site. These controls would include fences or other barriers, warning signs, and regular surveillance. Deed restrictions would be developed for future protection in the event the property were released to the public.

Alternative 3: Removal and Off-Site Incineration of Drums and Stained Soil. This alternative includes the removal and off-site disposal of 21 drums and approximately 35 cubic feet of visibly stained soil from OU 10. The material would be properly handled and incinerated in a permitted hazardous waste incinerator. The drums would be transported by licensed hazardous waste handlers, utilizing manifests to track the shipment and the receipt of the waste by a licensed hazardous waste treatment, storage, and disposal facility. The materials may require treatment as part of, or prior to, disposal.

Alternative 4: Removal and Off-Site Landfill Disposal of Drums and Stained Soils. This alternative includes the removal and off-site disposal of 21 drums and approximately 35 cubic feet of visibly stained soil from OU 10. The material would be properly handled and placed in a permitted hazardous waste landfill. The material would be transported by licensed hazardous waste handlers utilizing manifests to track the shipment and to track the receipt of the waste at a licensed hazardous waste treatment, storage, and disposal facility. The materials may require treatment as part of, or prior to, disposal.

Table 5-1 lists compliance of the four alternatives with ARARs. See also Section 6.1.7 of the *Feasibility Study for Operable Units 5, 6, 7, and 10.*

5.1.5 Summary of the Comparative Analysis of Alternatives

Table 5-2 provides a comparative analysis of Alternatives 1 through 4 for OU 10. Each alternative is discussed in more detail in Section 6.1.8 of the *Feasibility Study for Operable Units 5, 6, 7, and 10.*

5.1.6 Selected Remedy

The preferred alternative for Operable Unit 10, SWMU 41, is **Alternative 3: Removal and Off-Site Incineration of Drums and Stained Soil.** Based upon current information, this alternative would provide the best balance of trade-offs when evaluated against the nine EPA criteria as follows:

Overall protection of human health and the environment. This alternative meets the remedial action objectives for the drum contents and the stained soil and protects human health and the environment.

Compliance with ARARs. This alternative would comply with federal and state ARARs for removal, transportation, and disposal of the drums and stained soil at a hazardous waste incinerator. The owner and operator of the hazardous waste disposal facility would take responsibility for compliance with treatment, storage, and disposal requirements.

Long-term effectiveness and permanence. The baseline risk assessment indicates that the residual risk for this alternative would meet the remediation goals of limiting human health

Table 5-1. Compliance of Alternatives with ARARs for OU 10

Statute	Alternative 1: No Action		Alternative 2: Institutional Controls		Alternative 3: Incineration of Soil and Drums		Alternative 4: RCRA Approved Landfill Disposal		ARAR Category
	Meets Stds.	Does Not Meet Stds.	Meets Stds.	Does Not Meet Stds.	Meets Stds.	Does Not Meet Stds.	Meets Stds.	Does Not Meet Stds.	
OSHA	NA		X		X		X		Action Specific
Utah Air Conservation Act	NA		NA		X*		X*		Action Specific
Utah Corrective Action Clean-Up Standards Policy (UAC-R-315-101)		X		X	X		X		Action Specific
Utah Transporter and Landfill Disposal Standards (R315-1 through -10)	NA		NA		X		X**		Action Specific
Safe Drinking Water Act (MCLs)	X		X		X		X		Chemical Specific
40 CFR Part 268 Landfill Disposal	NA		NA		X		X**		Action Specific
40 CFR Part 264 TSD Stds.	NA		NA		X		X		Action Specific
Utah Groundwater Protection Rule	X		X		X		X		Chemical Specific
Utah Safe Drinking Water Act (MCLs)	X		X		X		X		Chemical Specific
Hazardous Material Transport Act	NA		NA		X		X		Action Specific

NA=not applicable.
*=action-specific, would apply during cleanup.
**=pretreatment standards may apply.

Table 5-2. Comparative Analysis of Remedial Alternatives for Soils and Drums at OU 10

Criterion	Alternative 1: No Action	Alternative 2: Institutional Controls	Alternative 3: Removal and Off-Site Incineration of Drums and Stained Soil	Alternative 4: Removal and Off-Site Disposal of Drums and Stained Soil
Overall Protection	Does not meet the remedial-action objectives of protecting human health and the environment because the drums would remain on site.	Does not meet the remedial-action objectives of protecting human health and the environment because the drums would remain on site.	Meets the remedial-action objectives of protecting human health and the environment.	Meets the remedial-action objectives of protecting human health and the environment.
Compliance with ARARs[a]	Does not comply with land disposal restrictions because the drums contain potentially hazardous waste.	Does not comply with land disposal restrictions because the drums contain potentially hazardous waste. Complies with OSHA[b] requirements for worker health and safety during implementation.	Complies with ARARs for transport of the drums to an off-site hazardous waste disposal facility. Complies with OSHA requirements for worker health and safety during implementation.	Complies with ARARs for transport of the drums to an off-site hazardous waste disposal facility. Complies with OSHA requirements for worker health and safety during implementation.
Long-Term Effectiveness	Would meet the remediation goals for soil of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. The drum contents pose a threat to potential ecological receptors.	Would meet the remediation goals for soil of limiting the cumulative excess cancer risk to human receptors to levels within or below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. The drum contents pose a threat to potential ecological receptors.	Would meet the remediation goals for soil of limiting the cumulative excess cancer risk to human receptors to levels below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. Would protect the environment and eliminate the need for long-term management of the site through the removal and proper off-site disposal of the 21 drums and stained soil.	Would meet the remediation goals for soil of limiting the cumulative excess cancer risk to human receptors to levels below the EPA target range for residual risk of 1E-4 to 1E-6 and limiting the cumulative noncancer hazard index to levels of 1 or less. Would protect the environment and eliminate the need for long-term management of the site through the removal and proper off-site disposal of the 21 drums and stained soil.

Table 5-2. Comparative Analysis of Remedial Alternatives for Soils and Drums at OU 10 (continued)

Criterion	Alternative 1: No Action	Alternative 2: Institutional Controls	Alternative 3: Removal and Off-Site Incineration of Drums and Stained Soil	Alternative 4: Removal and Off-Site Disposal of Drums and Stained Soil
Reduction of Toxicity, Mobility, and Volume	There is no reduction of the toxicity, mobility, or volume of contaminants in the soil or in the drum contents through treatment under this alternative.	There is no reduction of the toxicity, mobility, or volume of contaminants in the soil or in the drum contents through treatment under this alternative.	Eliminates toxicity and mobility of contaminants through removal and off-site disposal by incineration. There is no reduction of waste volume under this alternative.	There is no reduction of the toxicity, mobility, or volume of contaminants in the soil or in the drum contents through treatment under this alternative.
Short-Term Effectiveness	There are no short-term hazards to human health or the environment associated with this alternative.	Health concerns are the construction hazards associated with installation of a fence or other barrier. Wildlife may be temporarily disturbed by the construction activities.	Health concerns are the physical hazards associated with the removal and off-site transport of the drums and soil. Wildlife may be temporarily disturbed during removal and shipment of the drums.	Health concerns are the physical hazards associated with the removal and off-site transport of the drums and soil. Wildlife may be temporarily disturbed during removal and shipment of the soil.
Implementability	No implementability concerns.	Readily implementable.	Readily implementable.	Readily implementable.
Cost	No cost.	Capital: $19,500 O&M[c]/yr: $500 PW[d] @ 5%: $7,700 Total: $27,200	Capital: $222,000 O&M/yr: 0 Total: $222,000	Capital: $193,000 O&M/yr: 0 Total: $193,000
State Acceptance	NA[e]	NA	The State of Utah concurs with the selection of Alternative 3.	NA

Table 5-2. Comparative Analysis of Remedial Alternatives for Soils and Drums at OU 10 (continued)

Criterion	Alternative 1: No Action	Alternative 2: Institutional Controls	Alternative 3: Removal and Off-Site Incineration of Drums and Stained Soil	Alternative 4: Removal and Off-Site Disposal of Drums and Stained Soil
Community Acceptance	NA	NA	As outlined in the Responsiveness Summary for OU 10, public comments have been addressed and, where appropriate, incorporated into the selected remedy.	NA

[a]ARARs=Applicable or Relevant and Appropriate Requirements.
[b]OSHA=Occupational Safety and Health Act.
[c]O&M/yr=operation and maintenance per year.
[d]PW=present worth.
[e]NA=not applicable.

risks to current human receptors to below EPA target levels. The qualitative ecological risk assessment also indicates that potential risk to ecological receptors would be low. By removing the 21 drums and stained soil, this alternative eliminates the need for long-term management of the site.

Reduction of toxicity, mobility or volume through treatment. This alternative provides permanent reductions in the toxicity, mobility, and volume of the drum contents and stained soil through incineration.

Short-term effectiveness. Human health concerns associated with the implementation of this alternative are limited to personnel subject to physical hazards involved with the removal and off-site transport of the drums. The implementation time would be very short, so that the health risk due to potential exposure to site contaminants would be negligible. Personal protective equipment would be utilized in packaging the drums for disposal.

Implementability. Hazardous waste removal and disposal services for the 21 drums and 5 drums of contaminated soil are readily available in the Tooele area.

Cost. Costs for the selected remedy are summarized in Table 5-3.

Table 5-3. Total Capital Costs

Remedial Component	Units	Unit Cost	Cost
1. Prepare and remove drums	26*	$5,000	$130,000
2. Haul to Landfill	Lump Sum	1,000	1,000
3. Characterize wastes	2	550	1,100
4. Incinerate drums	26	1,000	26,000
5. Indirects @ 10%			16,000
6. Contingencies @ 30%			48,000
Total Costs			$222,000

Note.— There are no annual operating or maintenance costs for this alternative.
*The 21 drums in the wash plus 5 drums of stained soil.

5.1.7 Statutory Determinations

The selected remedy, removal and off-site disposal of drums and stained soil, meets the statutory requirements of CERCLA Section 121 as follows:

Be protective of human health and the environment. Removal of the 21 drums and 5 drums of stained soil will result in human health risks below EPA guidelines.

Short-term risks from implementation of this remedy would be negligible because of the very short time frame required for drum removal and because appropriate personal protective equipment would be used during drum handling.

Comply with ARARs. The selected remedy will comply with all state and federal ARARs as follows:

- Utah Solid and Hazardous Waste Act 19-6-101 et seq.
  - Citation R315-101
    Sets standards for cleanups
- Utah Solid Waste Management Act 19-6-501 et seq.
  - Citation R315-301
    Sets standards for disposal and incineration facility siting and operation
  - Citation R315-101
    Sets standards for cleanups
- Occupational Health and Safety Act
  - 29 CFR 1910.120 Hazardous Waste Operations
- Utah Air Conservation Act 19-2-101
- Resource Conservation and Recovery Act
  - 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
  - 40 CFR 268.50 Prohibitions on Storage of Restricted Wastes
- Safe Drinking Water Act
- Utah Safe Drinking Water Act
- Utah Ground Water Protection Rule

Cost-Effectiveness. The selected remedy, removal and off-site disposal of drums and stained soil, appears to be the most cost-effective alternative evaluated for OU 10. Alternatives 1 and 2, while less costly, do nothing to remove risks to human health and the environment.

Utilization of Permanent Solutions and Alternative Treatment to the Maximum Extent Possible. The selected remedy to remove the drums and stained soils from Box Elder Wash and appropriately dispose of them permanently eliminates contamination that may result from these materials and utilizes treatment to the maximum extent.

The selected remedy represents the best trade-off of evaluation criteria as shown in Table 5-1 above. The remedy is permanently effective and utilizes treatment technologies. The remedy effectively eliminates toxicity, mobility, and volume of the contamination. Health and environmental concerns over the short term are negligible because the implementation time for the remedy is very short. Contractors are readily available in the Tooele area to implement the selected remedy. The public health/environment cost benefit ratio is determined to be the lowest of the evaluated alternatives.

The fact that hazardous waste disposal facilities exist near Tooele is the primary consideration in choosing the drum and stained soil disposal remedy.

State and local community review of the information, which has gone into preparation of the administrative record for OU 10, has all been favorable toward the selected remedy.

APPENDIX A

TRANSCRIPT OF TOOELE ARMY DEPOT PUBLIC MEETING

Errata

Certain errors were made in the transcription of the public meeting. The following are corrections for those errors.

Page	For	Read
2, line 11	Environmental and Emphasis Structure	Environment and Infrastructure
3, line 2	Hal Hunting	Hal Dunning
5, line 20	calls	called
9, line 8	formate	format
10, line 3	compassitors	capacitors
12, line 5	burns	berms
12, line 11	known	none
17, line 24	TOSCA	TSCA
18, line 1 (2 places)	TOSCA	TSCA
18, line 3	TOSCA	TSCA

TOOELE ARMY DEPOT

PUBLIC MEETING

DISCUSSION: Tooele Army Depot-North Area CERCLA proposed plan for Federal Facility Agreement Operable Units 5, 6, 7 and 10

DATE: June 2, 1994

TIME: 7:00 p.m.

PLACE: Toole County Courthouse
47 South Main Street
Tooele, Utah 84074

CERTIFIED COPY

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June 2, 1994 7:10 p.m.

PROCEEDINGS

MR. FISHER: Good evening. My name is Larry Fisher. I'm from the Tooele Army Depot Environmental Office. I would like to welcome you tonight to the public meeting in which we will be discussing Tooele Army Depot's post plan for operable units 5, 6, 7 and 10. The proposed plan actually presents the clean up options for six of the 17 superfund sites out at Tooele Army Depot.

Tonight we have Mr. Bob Sanders from the RUST Environmental and Emphasis Structure. He will summarize the results of our studies and present the chosen clean up options for the six sites at the depot.

Before we begin with the presentation I would like to introduce some other people who are here with us tonight and have been working for us at the depot on this project. We have Ms. Mary Ellen Maly. She is from the Army Environment in Aberdeen Proving Grounds, which is an organization that helps the depots all across the country with these studies and working on those projects. Basically the studies and the clean up of the superfund projects.

I would also like to present the representatives from the Utah Department of Environmental Quality. We have Mr. Terry Hawkins and we have Ms. Diane Simmons. Also we

have representatives from our regional EPA offices in Denver, Mr. Floyd Nichols and Mr. Hal Hunting. They've been with us on this project also. They watch us very closely as we go about our studies and our clean up and processes.

If you haven't already signed our attendance roster, please do so. It's right over there on the table. If you'll do that on the way out we would appreciate it. And also if you would like your name to be placed on the mailing list there is a signup sheet over there also and you'll be sent copies and documents and various things that go along with our studies out at Tooele Army Depot.

And also please feel free to ask any questions during the presentation tonight, or if you have any comments or any discussion please feel free to interrupt at any time. Bob won't mind. Please feel free to do that.

If there are no questions at this time what I would like to do is turn the time over to Mr. Bob Sanders.

MR. SANDERS: Good evening. Tonight I will be discussing the process that we are following to investigate several locations at the Tooele Army Depot. In the past these locations have been associated with the use of some kind of hazardous materials. Because of this use of hazardous materials the locations have been placed under the federal environmental regulations associated with

superfund.

The superfund process requires that a series of steps be performed in a very vigorous manner to insure protection of the public health and the environment.

My presentation this evening explains this overall process and presents the results of the Army's investigation of six of the 17 locations.

Now associated with this work there are a lot of acronyms. So what I'll do is on this overhead is a listing of most of the acronyms that I'll be using tonight and also their definitions. Now like I mentioned, there are a lot of acronyms, so if you get confused you can refer back here when I mention OU, FS, NPL or that kind of thing.

The outline for the presentation tonight. To give you a little bit of the background we'll discuss the remedial investigation/feasibility study process under CERCLA or superfund, and then we'll also get into the specific actions that we're going to take which were addressed in the proposed plan.

Tooele Army Depot was listed on the NPL, the national priorities list, which is a list associated with superfund of sites across the United States that are considered to be contaminated with hazardous chemicals.

The listing followed a series of preliminary investigations designed to determine the hazards associated

with the installation out at Tooele. A series of calculations were performed and the installation was given a hazard ranking score. This hazard ranking score was above the EPA minimum, and therefore Tooele Army Depot was listed on the NPL.

Part of the superfund regulations require that all federal facilities that are listed on the national priorities list enter into what is known as a federal facility agreement, or FFA, with the EPA, the environmental protection agency, and also the state the facility is located in. In the case of Tooele this agreement was entered into between EPA Region 8 and the State of Utah and this was signed in September of '91.

The federal facility agreement outlines exactly what each one of the respective parties have responsibility for during this process.

This federal facility agreement included 17 locations that were suspected of having hazardous materials. These 17 locations were grouped into seven common areas calls operable units. All seven operable units were investigated by drilling monitoring wells, taking soil samples, sediment samples, surface water samples. And then those samples were sent to a chemical laboratory for analysis. They were analyzed for the presence or absence of hazardous materials. The

information that was received from the investigation was analyzed and developed into a report called a remedial investigation report.

Based on the RI report it was decided that three of the operable units, 4, 8 and 9, required more investigation before we could carry them forward in this process. Four of the operable units, 5, 6, 7 and 10, are being carried on to the feasibility study, proposed plan and record of decision. Part of the superfund process. The record of decision, which isn't up here, is a legal document that is signed between all parties of the federal facility agreement that has the final remedy for clean up of a site if it is required.

Also based on the results of the RI report it was decided that more investigation needed to be performed out at Tooele north area to determine if any plants and animals were at risk. In order to do this there is going to be a site-wide quantitative ecological risk assessment performed.

This is a map of the Tooele Army Depot north area to kind of orient you into where we're at here. In the vicinity of this north area is where Tooele, Utah is located, and over here north of OU 9 is where Grantsville is located.

The areas that I'm going to be talking about

tonight are the ones in red. The ones that I mentioned that are going to be carried on for further investigation are the ones that are outlined in the yellow.

The overall remedial investigation and feasibility process under superfund can really be broken down into three major steps. The first step is a preliminary study of a location. This involves record searches, discussions with employees that might be at the site, site walk overs and those types of things.

The results of this study determine whether or not a site is listed on the superfund NPL. That's really in these two blocks right here.

If it's warranted in the first step, which is this part of the diagram, a more detailed study is undertaken to determine the presence or absence of hazardous materials. During this step actual monitoring wells are drilled. Once again samples of water, air and soil are taken and these samples are sent to an analytical chemistry laboratory to be analyzed. And then the results that are received from the lab are developed into a detailed series of reports.

The outcome of this study results in detailed recommendations about the need for the clean up of any location. The study also provides the basis for the completion of the third step, which is this one down here.

The third step of the process is what we are really discussing tonight.

This is the point in this whole process where a decision has been made as to the need of a location to be cleaned up. And this step also evolves through remedial design and remedial action the implementation of the actual clean up through detailed engineering and public participation.

To give everyone that's working in this area, the EPA has developed some criteria that can be used or that have to be used, I guess should say, in order for us to determine if a clean up alternative is acceptable or not. These nine criterias are listed on the overhead.

The first one, the clean up alternative that's developed must be protective of human health and the environment before it is acceptable. The alternative must also comply with all federal, state and local regulations. This is referred to as applicable or relevant and appropriate requirements, ARARs. The alternative must also provide for long-term effectiveness and also a permanent solution. The alternative must reduce the toxicity, mobility and volume of the hazardous chemical. The alternative must be effective in the short term as well as long term. The alternative must be readily able to be implemented from both a cost and technical standpoint. The

alternative must be cost effective. The alternative must have overall state and EPA acceptance. And lastly, the alternative must also be accepted by the community.

Really the item that we're discussing tonight is the proposed plan. The detailed or the clean up alternatives that are developed during the detailed engineering phase of this process are placed into a report formate called a proposed plan. This proposed plan was developed to help the public participate in selecting the remedy.

There are three main areas that the proposed plan is involved with that identifies the preferred alternative from the FS. It describes other alternatives that were evaluated during the feasibility study. It solicits public review and comment. And the record of decision, which is the legal document that I mentioned earlier, is based on the proposed plan and any comments that are received from the public on the proposed plan.

With that little bit of background what I would like to do now is get into the specific sites that we're talking about that were included in the proposed plan.

The first site is the former transformer storage area, or location 17. This was an open storage lot that is gravel and covers approximately five acres. This lot has the size of about 350 by 600 feet. One of the

responsibilities of Tooele Army Depot north in the past has been the receiving, storage, maintenance and shipment of oil containing electrical transformers and compassitors.

Prior to 1979 long-term storage of those compassitors and transformers happened at this site. Many of these transformers contain PCB contaminated oil. In 1979 all the transformers were removed from this location and either properly disposed of or transferred to the PCB storage area, building 659, which is the next site that I'll talk about. The potential of a PCB spill that might have occurred in this area is the reason that this site was listed as one of the locations under the federal facility agreement.

With that in mind the proposed plan that has been developed for this site is as follows: The chemicals that we expected to find, or as I'll say on all of these overheads from this point forward, the contaminants of concern, were PCBs of this location.

What was found is that the maximum concentration of PCBs at this location was a half a part per million. Now to put that into perspective, a part per million is like taking a teaspoon of water out of your swimming pool is what that's about equivalent to.

The second thing is a risk assessment. The EPA requires that a risk assessment be performed as part of the

entire process. The outcome of the risk assessment is a determination of whether or not the location presents a hazard to human health or the environment.

The EPA has come up actual values called the EPA target range. In this case we were either within or below the EPA target range for the risk associated with this site.

The next step that we followed was to evaluate the clean up alternatives. There were six of them in this case. There was no action, which means we do nothing. Institutional controls, which is you put a fence up around the property or you restrict access. We looked at a soil cover, taking say a four inch protective soil cover over the whole site. We looked at stabilization. That could be as similar to mixing and pouring cement with the soil and then stabilization will be accomplished. The other two that we looked at is disposal of the material in a permitted off-site landfill and also disposal in a permitted off-site incinerator.

When it was all over and done with and the alternatives were evaluated, it was determined that no action in this case is the preferred alternative. And in fact this does meet the EPA criteria that I discussed earlier.

The next location is the PCB storage building

659, location 33. This building is currently being used to store transformers inside. This facility was opened in 1979 as I mentioned earlier and received the items that were removed from the storage lot. The building is equipped with burns inside and a sealed concrete floor to prevent any spills from being released in the environment.

There was a concern that there may have been a spill in the past, therefore this building was included as one of the locations under the federal facility agreement.

The proposed plan for this location, contaminants of concern again were PCBs, but known were found. A risk assessment in this case because we didn't find any PCBs was not performed. And the only other alternative that we evaluated was no action. And because of these two items this does meet the EPA criteria.

The next area is the drummed radioactive waste storage area, location 9. This is a picture of location 9, this concrete building. This building had one 55 gallon drum of material that contained gages and dials that had been painted with radium paint. Now this type of material can be considered a low level radioactive waste, therefore the concern that maybe there was potential for contamination within this area caused it to be listed under the federal facility agreement.

The proposed plan that's been developed for this

location, a scan for radioactive materials was performed and we didn't find any. Because of that no risk assessment was performed and the only alternative that we looked at in this case was no action. And it does meet the EPA criteria.

The next location is the radioactive waste storage area, which is located in a small room inside building 659. This room has been used in the past, and is also currently being used, to store radiation detection meters, compasses, range finders and radioactive luminous compounds. These items can contain radioactive materials. And the potential for a release to the environment at this location caused this area to be listed under the federal facility agreement.

The proposed plan for location 18, the contaminants of concern were radioactive materials. A scan was performed and none were found. So here again, the risk assessment, no evidence of contamination and the alternatives evaluated were no action. And this does meet the EPA criteria.

This is kind of an interesting site, the pole transformer PCB spill site. Back in 1976 lighting struck this utility pole, started the pole on fire and caused the transformer that was on the pole to spill on the soil below. Unfortunately the oil in the transformer contained

PCBs. The installation immediately cleaned up this oil and disposed of the soil in an appropriate manner. However, there is an approximately five foot by five foot by three foot deep whole that's still left around the utility pole and there was a concern that that may still contain some PCBs. So it was included under the federal facility agreement.

The contaminants of concern at this site were PCBs as I mentioned because of the transformer spill. Soil samples were taken and we found maximum concentration of .33 ppm. A risk assessment was performed with this value and it was determined that that is within or below the EPA target range.

We evaluated more alternatives in this case. We evaluated the no action alternative, institutional controls, soil cover, stabilization, off-site landfill disposal and off-site incineration. Through the detailed engineering the soil cover is the preferred alternative, just cover up the hole, grade it and that type of thing. This does meet the EPA criteria.

The next site that we'll be talking about is the Box Elder Wash site, location 41. This is a little difficult to see. But what this is, this is a picture at the bottom of this wash where 21 drums were dumped over the edge. The drums are located in a 100 to 200 foot long

stretch of the dry wash. And as you can see -- well, it's a little difficult -- most of the drums are covered with soil or vegetation in most cases.

The drums contain a substance that resembles roofing tar. These drums could have been left over from the construction of the igloos that were constructed out at Tooele. During construction of the igloos tar was actually painted over the top of the concrete structures before they were covered with soil. The unknown nature of the contents of the drums and stained soil that exists around the drums caused these to be listed under the federal facility agreement.

The proposed plan for this location 41 -- as I mentioned, we expected to find chemicals associated with roofing tar, and that is what we found, chemicals expected in roofing tar. We found low levels of explosives in two of the 21 drums. We also found chemicals similar to the roofing tar chemicals found in the drums and around each one of the drums.

A risk assessment was performed at this location. And in this case if the drums and stained soil are left in place they will represent a risk that is out of the EPA target range. So we evaluated four alternatives in this case, no action again, institutional controls, off-site incineration of both the drums and the stained

soil, and then also removal to an off-site landfill of the drums and the stained soil. In this case the preferred alternative balanced against all the EPA nine criterias turns out to be no. 3 or off-site incineration of the drums and stained soil.

This completes my presentation. Larry already indicated to you about the signup sheets. Also located in the back are copies of the presentation that I just gave, copies of the proposed plan, and we also have some copies of the detailed engineering reports that I mentioned during my presentation.

Are there any questions, comments or discussions that anybody would like to ask?

MR. KLINGER: My name is Jeff Klinger. I'm here with Salt Lake Community College. I'm going through an environmental hazardous training program. I came to see the public hearing. I was wondering who is doing the clean up?

MR. SANDERS: I'll defer that to Mary Ellen.

MS. MALY: The clean up will actually be performed by the Armed Corp of Engineers under contract. Since we're just in the proposed plan stage and still have to go through the formal record of decision, which is the legal document, we're proposing that that will probably be signed off by the Army regulatory agencies in October. At

which point the corp of engineers will go ahead and start the design and actual implementation. They will have to go out and bid through a contractor. So we don't know right now.

There is currently is a clean up ongoing at the depot at another site. It's some ground water contamination. There is a pump and treating facility. I think about 5,000 gallons of water per minute are being extracted and treated then reinjected back into the ground water.

Who is your contractor for that?

MR. FISHER: Metcalf and Eddie out of California.

MS. MALY: There is currently several other investigations that are ongoing at the depot both in the north area and in the south area, and there are three other contractors that are involved in those studies, Science Applications International Corporation, Montgomery Watson and Insearch as well as RUST. Quite a bit going on out there.

MR. SANDERS: Any other questions?

MR. FISHER: I have a comment on my own document. In the proposed plan it mentions in 33, the PCB storage building, that that was a TOSCA permitted facility. That is not correct. There are no permits required under

TOSCA and I just wanted to make that clear. It was a TOSCA regulated facility a long time back when we had those transformers stored there and we are inspected under TOSCA regulations. But as far as the no action site goes, yes, it was a no action site under CERCLA.

MR. SANDERS: Okay. Thank you.

(The public hearing concluded at 7:40 p.m.)

C E R T I F I C A T E

STATE OF UTAH)
:
COUNTY OF SALT LAKE)

I, Melinda J. Andersen Certified Shorthand Reporter and Notary Public within and for the County of Salt Lake and State of Utah, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth, and were taken down by me in shorthand and thereafter transcribed into typewriting under my direction and supervision:

That the foregoing 18 pages contain a true and correct transcription of my shorthand notes so taken.

WITNESS MY HAND and official seal at Salt Lake City, Utah this 13th day of June, 1994.

My commission expires:
December 9, 1995

Melinda J. Andersen, C.S.R.